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A MAGNETIC SURVEY

OF

JAPAN

REDUCED TO THE

EPOCH 1895.0 AND THE SEA LEVEL

CARRIED OUT

BY ORDER OF THE

EARTHQUAKE INVESTIGATION COMMITTEE.

REPORTED BY

A. TANAKADATE

'niversity Tokyō.

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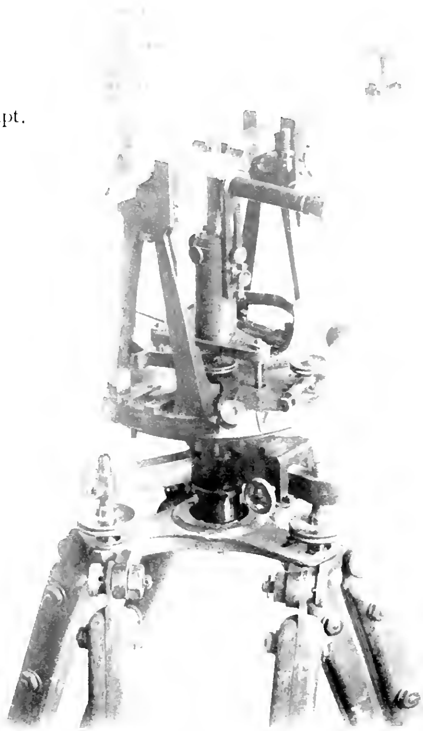
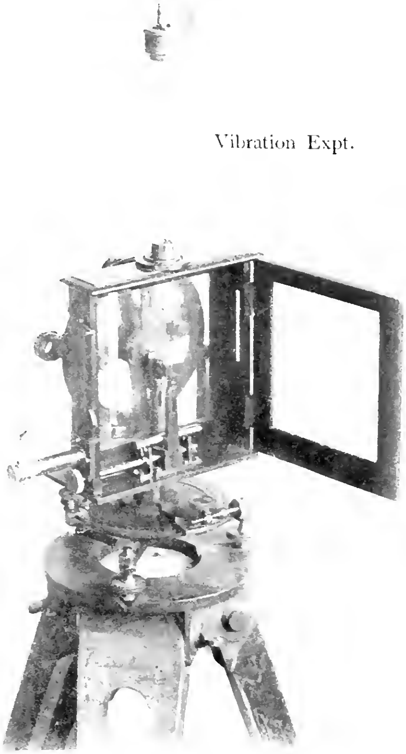
Professor of Physics, Imperial University Tokyo.

Deflection Expt.



Vibration Expt.



Time and Azimuth
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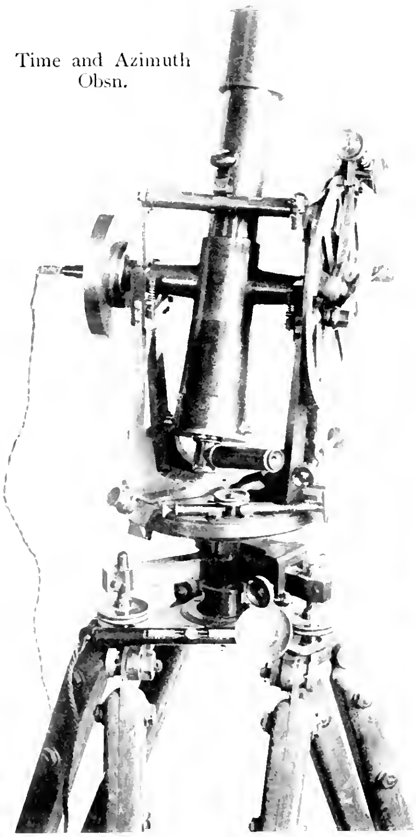

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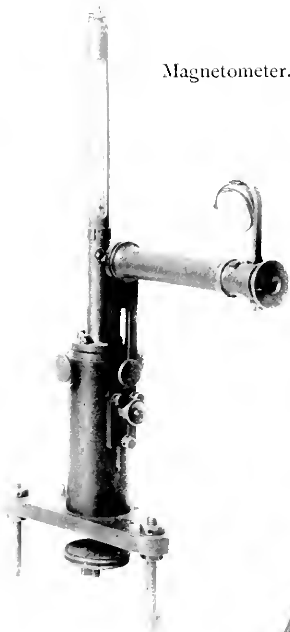
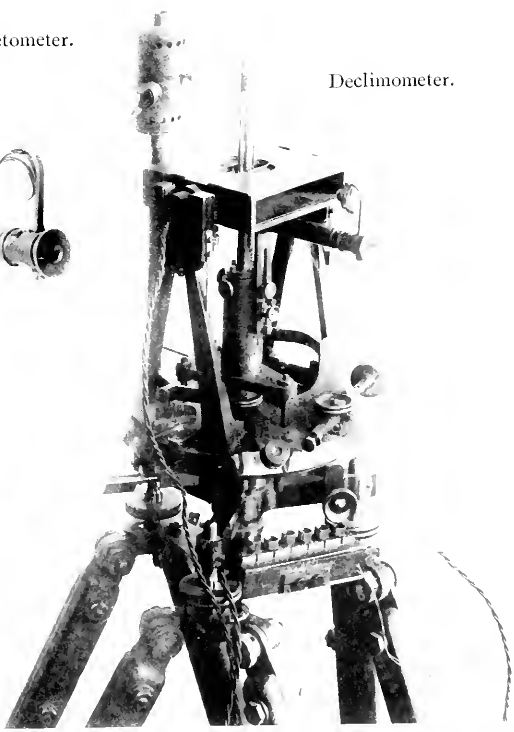


Declimometer.



PREFACE.

The magnetic survey of Japan published in the present volume was conducted under the authority of the Earthquake Investigation Committee during the four successive summers 1893–6. As will be seen from the complete list of observations, the work is the result of voluntary co-operations of the observers to whose skill and enthusiasm the success is due, and whatever credit there is in the survey it must be attributed to them all, the writer being merely in the position of reporter representing their different parties.

The observers were :—

H. Ōmori, *Rigakuhakusi*,
Prof. of Seismology, Imperial University Tōkyo.

S. Nakamura, *Rigakusi*,
Now Asst. Prof. of Physics, Imperial University Tōkyō.

K. Mizusima, *Rigakusi*,
Now K. Miyamoto.

H. Iwaoka, *Rigakusi*,
Now Prof. of Mechanics, Higher Technical School of Tōkyō.

H. Kimura, *Rigakusi*,
Now Director of the International Latitude Observatory, Mizusawa.

K. Turuta, *Rigakuhakusi*,
Now Prof. of Physics, Imperial University Tōkyō.

K. Uzhe, *Rigakusi*,
Now Director of the Middle School, Sendai.

A. Imamura, *Rigakusi*,
Now Asst. Prof. of Seismology, Imperial University Tōkyō.

Y. Kato, *Rigakusi*,
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D. SUTO, *Rigakusi*,
Now Prof. of Physics, Dai-iti Kōtōgakkō, Tōkyō.

S. SANO, *Rigakusi*,
Now Prof. of Physics, College of Naval Engineering, Yokosuka.

S. SINZYŌ, *Rigakusi*,
Now Asst. Prof. of Physics, Imperial University, Kyōto.

M. HATTORI, *Rigakusi*,
Now Prof. of Physics, Naval College E lazima.

A. TANAKADATE,
The writer.

The writer wishes specially to remember Prof. Dr. D. Kikuti, Baron, the President of the Earthquake Investigation Committee at the time, whose interest on the subject and whose cordial advice both official and scientific was of great encouragement to all of us. Thanks are also due to various public authorities and private persons who assisted the observers in selecting the stations; and to the three computers Messrs. T. KARIYA, *Rigakusi*, S. KUSAKABE, *Rigakusi* and Y. YASUDA, graduate of the School of Physics in Tōkyō, who performed that tedious work with care and patience.

The spelling of Japanese names adopted in this volume is slightly different either from that in common use among English speaking people in this country, or from that of the Romazikwai system to which the writer is an opponent. The Government Committee for the Improvement of the Language has lately brought forth a system which is a kind of compromise between the previous systems. At such a stage of orthographical reformation one might be excused to adhere to what he believes the best.

The appearance of the volume was much delayed by various circumstances under which the writer had to work. In the course of the preparation he had to make two official trips to Europe and to take a half year's rest between those two on account of his health, beside having had to attend several unavoidable committee works. But above all we regret the delay in lithographic printing which kept the work over three years. The publication however is quicker than otherwise it would have been through the kind assistance of his colleague Prof. H. Nagaoka who arranged the materials of the appendix and commenced printing during his absence.

A. Tanakadate.

Physical Laboratory,
Imperial University, Tōkyō.
March, 1904.

Contents.

Tables.

Plates.

Errata.

Page.	3	Line 14 from botton, put a comma after Sendai.			
,,	10	Line 9 ,, ,,	for	axil	read axle.
,,	23	Line 2 from top,	,,	1887.51	,, 1887.61.
,,	30	Line 10 ,, bottom	,,	11	,, 12.
,,	53	put. the minus sign to the first two numbers in the table.			
,,	(129)	Line 3 from top	,,	premissed	,, premised.
,,	147	Line 4 from bottom	,,	{above below	,, {below above
,,	151	Lines 7 from top and 9 from bottom	,,	maximum	,, minimum.
,,	160	Line 10 from bottom	,,	Azimuth	,, Azimuths.

PLATE XVIII. heading, read Jour. Sc. Col. Vol. XIV.

PLATE LX to LXXXVI. heading, for Vol. XIII ,, Vol. XIV.

PLATE XCVII. Map. 10. Station No. 188 Honsyō, reduce the arrow line to 1.4 *m. m.* and turn the azimuth to 41° east of south as given in Table XVI P. 103. Station No. 132 Abasiri, turn the arrow line in azimuth to 37° east of north as given in Table XVI P. 99.

Errata.

(N.B. Errata for the Appendix is given at its beginning.)

Frontispiece for Declimometer read Declinometer.
Page vi Line 15 from bottom, ,, was ,, were.
,, x ,, 8 ,, top, ,, formula ,, formulæ.
,, xii first line, ,, botton ,, bottom.
,, ,, Line 6 from top, ,, (129) ,, 129.
,, 3 ,, 15 ,, bottom, change the comma to a semicolumn.
,, ,, last line. for boardering read bordering.
,, 5 Line 3 from bottom, ,, blancket ,, blanket.
,, 9 ,, 6 ,, top, after Length, *insert* of magnet at 0°C.
,, 15 ,, 12 ,, bottom, for transit read transits.
,, 31 ,, 13 ,, ,, ,, Those ,, These.
,, ,, ,, 11 ,, ,, before pantograph, *insert* a.
,, 33 Table VI, last column, for —6.′1 read —6.$^{\gamma}$1.
,, 87 to 117, foot notes, ,, horison ,, horizon.
,, 107 heading Altitude, *insert* *
,, 111 ,, for 1835.0 read 1895.0.
,, 127 Line 2 from top, before by, *insert* effectually.
,, 130 ,, 7 ,, bottom, before $\frac{1}{2}\gamma$,, $\doteqdot$
,, 135 end of the foot note, ,, Z.
,, 140 Line 8 from top, after Gauss, ,, a comma.
,, 145 ,, 4 ,, bottom, to the end of the line *insert* (10)
,, 149 ,, 14 ,, ,, for assymptotie read asymptotic.
,, 150 ,, 8 ,, ,, ,, ,, ,, ,,
,, 151 first line, change the full stop to a comma
,, 152 Line 10 from top, for assymptotie read asymptotie.
,, 156 Fig. 7 , ,, $\frac{\partial Z'}{\partial Z}$,, $\frac{\partial Z'}{\partial z}$
,, 157 ,, 9 , $\frac{\partial H'}{\partial Z}$,, $\frac{\partial H'}{\partial z}$
,, 160 Line 2 from bottom, for layed ,, laid.
,, 164 ,, 4 ,, ,, ,, table ,, Table.
,, 165 ,, 3 ,, top, ,, then ,, them.
,, 166 ,, 11 ,, bottom, after The, *insert* numerical.
,, 167 ,, 3 ,, top, for convension read convention.
,, 168 ,, 9 ,, ,, ,, $\frac{\partial Y'}{1 z}$,, $\frac{\partial Y'}{\partial z}$
,, 173 ,, 3 ,, bottom, ,, existance ,, existence.
,, ,, last line, ,, attension ,, attention.
,, ,, ,, ,, ,, scaler ,, scalar.
,, 174 Line 2 from top, ,, sitz ,, Sitz.
,, ,, ,, foot note, ,, Gauss Gesammelt ,, Gauss, Gesammelte.
,, 175 ,, 6 from top, ,, asimuth ,, azimuth.
,, 176 ,, 15 ,, bottom, ,, occurrance ,, occurrence.
PL.XCVIa, heading, ,, Emperical ,, Empirical.

A Magnetic Survey of Japan Reduced to 1895.0 and Sea Level.

§ 1. Object of the Survey.

The object of the survey was to get a closer view of the distribution of magnetic force in the country than hitherto has been done. It is hoped that we may obtain in this way some insight into the tectonic character of the country which might throw light upon the distribution of earthquake disturbances with regard to time and space.

The object was twofold, first to obtain a general or normal, as it is sometimes called, distribution and second to get the extent and nature of local disturbances in special districts. With the first point in view a comparatively large number of stations were taken in places which were apparently free from disturbances of any great magnitude; and with the second point in view observations were made in volcanic regions or in places where violent geological changes are supposed to have taken place. How near we have come to realize those expectations is clearly shown in the maps. It will be seen that we have done something toward the first, but for the second a much more extended series of observations are needed, although we believe that some of the prominent points are brought out by the present survey.

§ 2. Division of Work in each Year.

In 1893 the middle part of Honsyū was surveyed by two parties called for convenience the East Party and the West Party.

The East Party consisted of H. Ōmori, S. Nakamura, K. Mizusima and H. Kimura and began its work on July 3rd. and ended on Oct. 23rd. It made observations at 44 stations covering the district between the island of Sado on the north and the peninsula of Idu on the south, and from the Lake Suwa to the plane of Sumidagawa across the other directions. It took several observations on the active volcano Asama.

The West Party consisted of A. Tanakadate, K. Turuta, H. Iwaoka, and K. Uziie beside T. Noda who joined the Party for half of the time. It began its work on July 1st. and ended on Oct. 27th. and made observations at 47 stations in the district extending between the peninsula of Noto on the north to the harbour of Toba on the south, and from the shore of the Lake Biwa to the eastern foot of Huziyama on which several observations were taken.

This party had the mishap of breaking the spider line suspension of the magnetometer at the first station after Tōkyō, and on repairing an unforeseen blunder was committed by using too thick a fibre, the erroneous effect of which was discovered at the station Gihu after making observations at 22 stations. This affected the value of the horizontal intensity but a little, its effect upon that of the declination was however too great to be allowed; hence A. Tanakadate left the rest of the party at Turuga and made re-determinations of that magnetic element at those stations except a few on the top of Huziyama.

In 1894 the Island of Hokkaidō was surveyed by two parties called the North Party and the South Party.

The North Party consisted of A. Tanakadate, K. Mizusima and H. Kimura; it began its work on June 26th. and ended on Oct. 15th. and made observations at 38 stations covering the whole district lying to the north of Yūbari range and Mororan Bay.

While making observations at Asahigawa the 12th. station of the year, K. Mizusima got a sting of an insect on his eye which became so serious that medical treatment was necessary, and H. Kimura was called to take his place, who again after working on 13 stations was obliged to leave the Party at Nogami on account of fever, so that the remaining stations were observed by Tanakadate alone.

The South Party consisted of S. Nakamura and A. Imamura and began its work on June 26th. and ended the work on Oct. 28th., it made observations at 28 stations including Tōkyō and Sendai on the southern half of the island approaching the district of the North Party at Nemuro and Setana.

In 1895 the northern part of Honsyū was surveyed by two parties called the North Party and the South Party.

The North Party consisted of A. Tanakadate, S. Sinzyō and Y. Katō, and began its work on June 23rd. and ended on Sept. 13th. and made observations at 37 stations covering the whole district lying to the north of Sendai. This Party had the assistance of Z. Tatihara near the end of the work.

The South Party consisted of S. Nakamura, A. Imamura, T. Tamaru and D. Sutō, and began its work on June 23rd. and ended on Sept. 4th.; it made observations at 32 stations covering the district lying to the south of Sakata to the peninsula of Awa-Kazusa boardering on the west on the valley of

Sinanogawa. This party made observations at a few stations of the East Party of 1893.

In 1896 the southwest of Honsyū, Sikoku and Kyūsyū was surveyed by three parties, called the Kinki Party, the Seto Sea Party and the South-West Party.

The Kinki Party consisted of S. Nakamura, Y. Katō and T. Tomoda, and began its work on June 30th. and ended on Sept. 6th.; it made observations at 28 stations covering the district lying to the west of the Sea of Ise up to Okayama Bay making a point on the Island of Awadi. It took observations at a few western stations of the West Party of 1893.

The Seto Sea Party consisted of A. Tanakadate, D. Sutō and S. Sano, and began its work on June 26th. and ended on Oct. 7th.; it made observations at 43 stations covering the district lying to the north and south of the Seto Sea on the west side of Okayama Bay, and three stations on the northeast of Kyūsyū.

The South-West Party consisted of A. Imamura, S. Sinzyō and M. Hattori, and began its work on June 28th. and ended on Sept. 7th.; it made observations at 30 stations covering the whole of Kyūsyū except the three stations above mentioned.

In counting the number of stations, the base station Tōkyō and some of the repeated observations at the same station in different years are included; while those places where only dip and vibration experiments were made are excluded.

§ 3. Equipments and Procedure of each Party.

Each party was equipped with a set of magnetometers, a chronometer, a tent, a folding sofa adapted for bed, a battery of

dry cells, small electric lamps, a box of necessary tools and materials, besides the "Berliner Jahrbuch," a logarithm table and note books.

The magnetometer is described in the next section: All the chronometers used were siderial, made by Negus, New York. The tent was specially designed for the purpose, it is round 3.5 meters in diameter pitched with a center pole of 2.7 meters length. It is made in two parts, a conical top and a cylindrical wall, each of which can be folded back partly or wholly to accommodate various circumstances. It has a mosquito net fitting inside closely throughout. The top can be opened for astronomical observations and turned round after the fashion of an equatorial dome. Observations were often made with the net on, this caused diffraction phenomena producing four images with tails round the central spot, corresponding to square meshes of the net. The effect is however of no importance for the kind of work we are concerned with. On hot days the wall was removed giving the tent an appearance of a large umbrella with hanging curtains. This defence against insects proved also to be a useful guard for the instruments against wind and dust. The tripod for the magnetometer was set on the east side and that for the dip circle on the west, and the sofa on the north; a small shelf was rigged to the center pole for laying notes and small articles.

The magnetometer, dip circle and chronometer were carried by the observers themselves in travelling by rail or carriage, in crossing over mountains they were usually carried by coolies or sometimes on horseback; the chronometer was well corked round the gimbals and the box thickly wrapped in blancket which secured it both against mechanical jars and abrupt changes of temperature.

The selection of station was done by what was called the forerunner "Senpatu-in" who came to the place a day or half before the rest of the party and made necessary examination and arrangements. Stations were taken with the usual precaution against disturbances from buildings, railways, iron bridges, electric plants, factories &c.; care was also taken with regard to the permanency of its surroundings in order that observations may be repeated in future at the same place, although there must be allowed a large margin of uncertainty in this respect. Pl. LX to Pl. LXXXVII are topographs of stations. The objects to be represented for the identification of places are so various that the uniformity of scale and orientation could not be followed; in most cases they are sketches taken by the observers and are to be looked upon as mere substitutes for verbal description.

No member of the party was specialized to take any particular kind of work, on the contrary each had to do all the operations by regular turn including even the business part of acting as the forerunner above spoken of. This was insisted on, not on account of equal sharing of labour but for the object of eliminating personal errors of observations and peculiarities of manipulation which were likely to be thus discovered. This gave also the party the power of continuing its prescribed work even if it be reduced to one person through accidental failure of the rest, which unfortunately happened more than once during the survey.

In the last two years of the survey, besides making regular sets of observations in the tent, observations of dip and horizontal intensity by vibration only were made at two or three points in the neighbourhood, under the protection of a parasol from

which iron was replaced. The result verified to a certain extent the selection of the station. Local disturbances in an apparently smooth plane were sometimes surprising. Those points are not numbered in the list but are given as "*Syuttyō*"; Nos. 54 to 61 in the first year are of this category, and they would have been so named had they not been observed with the express view of finding the effect of Huzi.

§ 4. Instruments.

There are four sets of magnetometers belonging to the Earthquake Investigation Committee, three of which were used in the survey. Their construction is the same in principle as that adopted in the magnetometer used by the South Party of the magnetic survey of 1887, and fully described in Vol. II p. 178 and Vol. V p. 163 of this journal. The plate in the front page is the photograph of No. 1 instrument. The theodolites were ordered from Troughton and Simms of London for the special purpose. The graduated diameter of the azimuth circle is 18 cm. and that of the altitude circle 17.5 cm., both are divided to every $10'$ and are read with two verniers to $10''$. The telescope is of 4.8 cm. clear aperture and 36 cm. focal length and has five transit wires of about 10^s equatorial interval.

The modifications now introduced in the part of magnetometer are of minor importance being simply for the convenience of manipulation, they are :—

1. The magnetometer which is now put in a metal tube to guard against electrostatic effect of glass tube.

2. Magnetometer stand which is in the form of a tube standing upon three legs and can be fixed either to the base

plate of the theodolite for declination observation, or to the base of Y's for deflection experiments, by working the differential screw at the center. (See pl. in front page.)

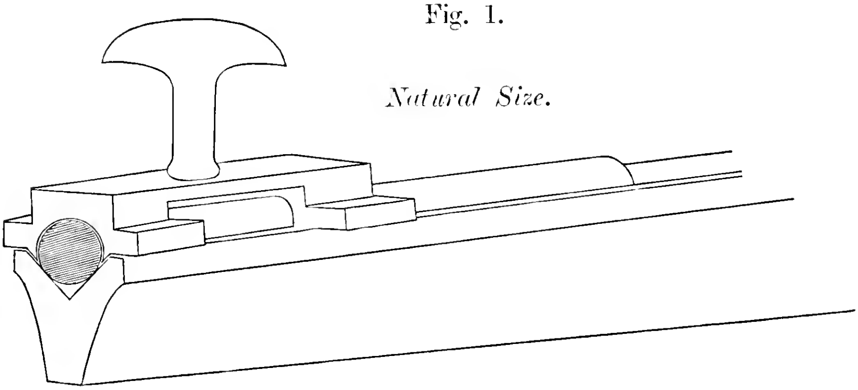
3. Use of autocollimating telescopes, which makes the instrument more compact.

4. Cylindrical form of vibrating magnet which facilitates the use of transporter.

5. The transporter with which the magnet can be carried from one position to another on deflection bar or reversed in direction with great ease, without the danger of imparting heat from the hand of the observer.

Fig. 1.

Natural Size.



It may be remarked here that Mr. Ch. Chree's objection to the Kew pattern of deflection bar was looked into in 1887 already, though not expressly stated. From the photograph in the front page, it will be seen that the correction arising from the flexure of the bar is very small in our design.

6. The use of the dip circle box for vibration box: for this purpose two Y's were provided on the base plate of the box. When the bar magnet was laid on those Y's its axis was horizontal and it was so adjusted in azimuth that its direction,

as observed by the reflected line in the focus of the telescope from its polished end, remained unchanged, when it was lifted up slowly by screwing up the suspension fibre.

The instrumental constants are as follows :—

		No. 1	No. 2	No. 3
Length in cm.		6.9911	6.9907	6.9461
Diameter „ „ (mean)		0.7912	0.7982	0.8060
Weight „ gr.		26.6640	27.1638	27.4545
Moment of inertia, I (gr. cm^2.)		109.643	112.150	111.505
Distances of center of magnet from magnetometer in cm.	r_1	30.0130	29.9945	30.0363
	r_2	23.0023	22.9941	22.9747
$\log 1/(2\pi\sqrt{I})$		$\bar{2}.18183$	$\bar{2}.17692$	$\bar{2}.17817$
$\log r_1^5$		7.38655	7.38521	7.38823
$\log r_2^5$		6.80886	6.80808	6.80625
$\log \dfrac{1-2\mu/r_1r_2(r_1+r_2)}{2(r_1^2-r_2^2)}$		$\bar{3}.12872$	$\bar{3}.12878$	$\bar{3}.12561$

$\mu=3.8$ for all the magnets, found by magnetometric method.

Those bar magnets were selected from ten of similar ones.

The moment of inertia is calculated in two ways, once from the linear dimensions and weight, and again by comparing it with that of a brass cylinder belonging to Kew magnetometer No. 64 by vibration method: the latter gave always slightly greater values than the former which may be due to heterogeneity in its density; but as vibration method is not entirely free from uncertainty, inasmuch as the time of vibration is usually affected by small fluctuation in the value of the horizontal intensity during the experiment, the mean of those two values is adopted in reducing the observations.

There are three dip circles belonging to the same committee

made by Casella, these are Nos. 5613, 5614, and 5615; after 1894 they are numbered as 1, 2, 3, respectively and are put together with the magnetometers of corresponding numbers. In 1893 one dip circle (Casella No. 4365) was borrowed from the Hydrographic Bureau for the East Party and another (Dover No. 88) from the Science College for the West Party.

For reversing the magnetisation of needles a pair of coils each wound with insulated wires of three different diameters; the thinnest being put innermost, was made for each set of instruments. They were put in a closely fitting box which acted also as sliding guide in introducing the needle safely into the narrow cores. The usual bar magnets were only carried to provide for the case of the failure of dry cells.

The declinometers were electromagnetic, the same as those used in the survey of 1887, the only difference being in the construction of the mirror magnetometer already described.

Simultaneous observations were made with those instruments at various times as is seen in the Complete List of Observations, and differences were found. They arise from the errors in the determinations of the constants, from the errors of graduation and the eccentricity of the circles, from the deviation from circular form in the axil of dip needle besides the accidental errors of observations. The difference will depend upon the local values of magnetic elements and different sets of observers to certain extent, hence we have not applied instrumental corrections in any of the results, the constants of the magnetometers were however determined at various intervals during the survey.

The distribution of these instruments among the several parties were as follows:—

Year	Party	Magnetometer.	Dip Circle.
1893	East Party	No. 2*	Casella No. 4365
	West Party	No. 3	Dover No. 88
1894	North Party	No. 1	Casella No. 5613
	South Party	No. 3	,, No. 5615
1895	North Party	No. 1	,, No. 5613
	South Party	No. 3	,, No. 5615
1896	Kinki Party	No. 1	,, No. 5613
	Seto Sea Party	No. 2	,, No. 5614
	South-West Party	No. 3	,, No. 5615

§ 5. Method of Observation.

The Vibration Experiment was always made before the deflection experiment in determining the horizontal intensity. This was generally done by two men, an observer gave signal of the transit of the reflected line in the observing telescope by making a tap with a small piece of wood, and a recorder looking at the chronometer noted down the time estimated to nearest tenth of a second; 15 successive transits in the same direction were observed at the beginning and end of 50 complete vibrations, the chronometer being placed at 2½ meters distance from the magnetometer.

When it was performed by a single person the eye and ear method as in the case of star transit was employed; this requires the period of magnet to be greater than four seconds. A correction on account of the non-uniformity of the visible motion is applied which is easily found to be

* In 1893 the bar magnet No. 1 was used with the magnetometer No. 2 and the reduction is carried accordingly.

$$\frac{2\pi}{\tau}\ \mathrm{tg}^{-1}\frac{\sin 2\pi/\tau}{\cos 2\pi/\tau+(1-n)/n}-n$$

where n is the estimated fraction of a second and τ the period of vibration of the magnet. Table I is constructed for the purpose.

TABLE I.

Corrections to be Applied to the Estimated Fractions of Second when Simple Harmonic Motion is Observed by Eye and Ear Method.

τ Period / n Fractions of second	4^s	5^s	6^s	7^s	8^s
0	.000	.000	.000	.000	.000
$0^s.1$	−.030	−.019	−.013	−.010	−.007
$0^s.2$	−.044	−.027	−.018	−.014	−.010
$0^s.3$	−.042	−.025	−.017	−.012	−.009
$0^s.4$	−.026	−.013	−.010	−.007	−.005
$0^s.5$	.000	.000	.000	.000	.000
$0^s.6$	+.026	+.013	+.010	+.007	+.005
$0^s.7$	+.042	+.025	+.017	+.012	+.009
$0^s.8$	+.044	+.027	+.018	+.014	+.010
$0^s.9$	+.030	+.019	+.013	+.010	+.007
$1^s.0$	.000	.000	.000	.000	.000

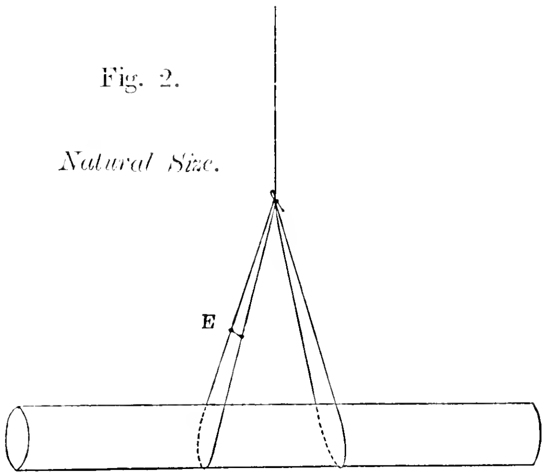
The magnet is suspended with two loops of silk fibre as in Fig. 2 and is free from any mechanical stress except the pressure due to its own weight. The loops weigh about $\frac{1}{2}$ milligram and

their lowest ends are nearly 2 cm. apart, so that its moment of inertia about the vertical axis is less than 0.0003 gr. cm.[2] and is neglected in the calculation.

The inclination of the magnet is adjusted by moving the small tie E in Fig. 2 within fraction of a minute. The magnet is subject to a slight motion in the vertical plane caused by accidental disturbances of the air or ground tremors. This effect as well as that of the inclination upon the proper period of vibration was specially studied by making observations with large amounts of those errors purposely given, as follows:—

Fig. 2.

Natural Size.



Kogota July 1st. 1895. *Observer* S. SINZYÔ.
Recorder A. TANAKADATE.

Local Time		Temperature	Time of Vibration	Remark.
11^h	24^m A.M.	20°.6 C.	5ˢ.8810	normal position
11^h	41^m ,,	20 .9	5 .8785	north end down 30′
11^h	50^m ,,	20 .7	5 .8780	{with motion in the vertical plane, amplitude 30′ to 15′
1^h	06^m P.M.	21°.0 C.	5ˢ.8796	normal position
1^h	15^m ,,	21 .4	5 .8770	north end up 27′
1^h	47^m ,,	21 .3	5 .8797	,, ,, down 30′
2^h	30^m P.M.	21°.5 C.	5ˢ.8851	normal position
2^h	32^m ,,	21 .2	5 .8859	{with motion in the vertical plane, amplitude 20′ to 16′

As these effects vary with the squares of amplitudes they will be entirely negligible when the deviation from the normal position is one or two minutes.

The Deflection Experiment was done with two distances which are fixed in each bar (r_1 r_2 of § 4). The order of various positions of the magnet was as indicated in Fig. 3, (1) (2) (3) (4), (−4) (−3) (−2) (−1) and again (1) for check, where − sign shows that the magnet is reversed end for end. This order seems to be the usual one: it is found though too late that better order is (1) (−1), (2) (−2), (3) (−3), (4) (−4), reversing at each particular position; series of experiments were made for the express purpose of comparing the methods, and it was found that the latter order gave more consistent values than the former. The reason is obvious, in the former method the slight change in declination during the experiment, which takes about 15 minutes in our case, produces error in the angle of deflection, while in the latter method this error is minimized.

Fig. 3.

The temperature coefficient of the magnetic moment of each bar magnet, was found directly from the experiment; sufficient differences of temperature being usually obtained from the morning and afternoon observations as is seen in the complete list under the headings "M." and "Temp." The fractional decrement of moment per degree centigrade varied between .00070 and .00082 and the correction is applied as shown in the specimen page where t_v and t_d are the mean temperatures in vibration and deflection experiment respectively.

The Dip Circle was set into the magnetic meridian by the usual process of observing its position in which the needle stands

vertical. The reading of the azimuth thus found was compared with that found when the vibration experiment was carried. The difference between those two kept nearly constant; hence when vibration experiment was done before the dip, the magnetic meridian was obtained by applying this small difference. The method was especially convenient when experiment was done in open in "*Syuttyō.*"

In reversing magnetism by means of the coils the current was kept for ten seconds, at first the magnet was reversed with regard to the coils and the current reversed to eliminate any unsymmetry. It was found however in the course of the survey that this double operation was quite superfluous.

The Declination was observed in the same way as in the previous survey, the only difference consisted in taking four positions of the coil in each set of observations, reversing the coil with regard to north and south and again with regard to east and west, although the mean of the last pair is usually sufficient.

The Astronomical Meridian was usually found by observation of the Polaris, and then transit of six stars were taken with the telescope reversed in Y's at the middle, each three being north, zenith and south stars. From these observations azimuth collimation and clock errors were found by Mayer's method. In setting the theodolite into the meridian, the graphical method given by the writer (Sūgaku-Buturigakkwai Kizi Vol. VI p. 21) was very handy as the azimuth could be found at a glance to fraction of a minute.

The attached specimen pages of field notes which were entered in printed schedule will illustrate the process.

Local Time and Chronometer Rate were determined at nearly every station by taking observations in the evening and either

SPECIMEN PAGE OF OBSERVATIONS FOR

Date, *August* 10*th*. 1896.

Observer TOMODA.

Recorder NAKAMURA.

Temperature		Time: Final		Time: Initial		Time: Diff.
Init.	28.°4 c	m 51	s 5.0	h 15 m 46	s 14.2	s 200.8
Finl.	28.0		10.8		20.0	.8
Mean	28.2		16.6		25.8	.8
Corrn.	.0		22.5		31.7	.9
	28.°2 c		28.3		37.5	.8
			34.1		43.3	.8
Arc.			40.0		49.1	.9
Init.	9.0		45.8		54.9	.9
	51.0		51.6		0.7	.9
Diff.	42.0		57.4		6.5	.9
Finl.	40.2		3.2		12.4	.8
	19.7		9.0		18.2	.8
Diff.	20.5		14.8		24.0	.8
M of Diff.	31.2		20.6		29.8	.8
Red.		52	26.5	47	35.6	.9

Torsion

		Mean	Diff.
0	40.2 19.7	29.95	1.45
$+2\pi$	40.0 8.0	28.50	1.40
0	49.0 10.8	29.90	1.15
-2π	50.0 12.1	31.05	1.10
0	51.0 8.0	29.95	
		Mean	1.27
		=	3′.8

No. of Vibn.	50		290.84
Time of single Vibn.			$5^s.8168$
Log. Tab.	L. T_0	1	0.76468
Tab. I.	L. $\left(1+\frac{s}{86400}\right)$	2	$\bar{1}.99879$
Tab. II.	L. $\left(1-\frac{\alpha^2}{16}\right)$	3	0
Tab. III.	L. $\left(1+\frac{\theta}{2\pi-\theta}\right)^{\frac{1}{2}}$	4	0.00004
Tab. IV.	L. $\left(1+\frac{\mu H}{M}\right)^{\frac{1}{2}}$	5	0.00060
Tab. V.	L. $(1+\alpha t)$	6	$\bar{1}.99986$
	L. $(1/2\pi\sqrt{I})$	7	$\bar{2}.18183$
(1)...+(7)	L. $(1/MH)^{\frac{1}{2}}$	8	2.94580

FINDING THE HORIZONTAL FORCE.

Observer NAKAMURA.

Place, Myōzi.

Recorder TOMODA.

	Mag. W. $r_1=$ *a*	*b*		Mag. E. $-r_1=$ *a*	*b*
Dir. (1)	0° 49′ 30″	189° 49′ 30″	(4)	0° 50′ 0″	189° 49′ 50″
Rev. (8)	357 53 0	177 52 50	(5)	357 57 30	177 57 40
Diff.	11 56 30	11 56 40		11 52 30	11 52 10
Mean	11° 56′ 35″	11° 54′ 27″.5		11° 52′ 20″	
		$\varphi_1 =$ 5° 57′ 13″.8			
	$r_2=$			$-r_2=$	
Dir. (1)	17° 21′ 05″	197° 20′ 50″	(3)	17° 21′ 50″	197° 22′ 05″
Rev. (7)	350 16 30	170 16 50	(6)	350 30 5	170 30 20
Diff.	27 4 35	27 4 0		26 51 45	26 51 45
Mean	27° 4′ 17″.5	26° 58′ 01″.2		26° 51′ 45″	
		$\varphi_2 =$ 13° 29′ 00″.6			

	h	*m*
Ended	16	15.2
Began	15	46.2
Mean	16	00.7
− T	−	40.5
	15^h	20.2 sidl.

Temperature						
Initial		Tab. VI.	L. r_1^5	1	7.38055	
a	27°.0 c	Log. Tab.	L. sin φ_1	2	$\bar{1}$.01589	
b	26°.8 c	(1)+(2)	L. r_1^5 sin φ_1	3	6.40244	
Mean	26°.9 c	Tab. VI.	L. r_2^5	4	6.80886	
Corrn.	0	Log. Tab.	L. sin φ_2	5	$\bar{1}$.36766	
	26°.9 c	(4)+(5)	L. r_2^5 sin φ_2	6	6.17652	(3)−(6)
Final		Log. Tab.	L. $\left(\frac{r_1^5 \sin \varphi_1}{r_2^5 \sin \varphi_2} - 1\right)$	7	$\bar{1}$.83402	0.22592
a	26°.5 c	Tab. VI.	L. $\frac{1-2\mu/r_1 r_2 (r_1+r_2)}{2(r_1^2 - r_2^2)}$	8	$\bar{3}$.12872	
b	26°.4 c	Tab. VII.	L. $(1+\beta t)$	9	0.00067	
Mean	26°.45 c	(6)+...(9)	L. M/H	10	3.13993	
Corrn.	0		L. $\sqrt{M/H}$	11	1.56997	
	26°.45 c		L. $\sqrt{1/MH}$	12	$\bar{2}$.94580	
(M)	26°.68	(11)−(12)	L. M	13	2.62417	M = 420.81
$t_r - t_d$	1.5	(13)−(10)	L. H	14	$\bar{1}$.48424	H = 0.30496
					$(t_r - t_d)\frac{1}{2}\alpha H$	corrn. = 4

H = 0.30500

SPECIMEN PAGE OF OBSERVATIONS

Instrument No. 3.
Date Oct. 6th. 1894.

Time			W			E			Mean			Zero Reading and Mean		
h m			°	'	"	°	'	"	°	'	"	°	'	"
18 42.8	Mark S	*a*	1	38	40		35	55				5	42	14
		b	181	39	20		36	30						
		m		39	0		36	12.5	1	37	36.3			
49.2	Mark N	*a*		38	10		35	0						
		b		38	55		35	50						
46.0		*m*		38	32.5		35	25		36	58.8	1	37	17.6
20 1.8	Mark S	*a*	1	38	0		35	15						
		b	181	38	50		36	0						
		m		38	25		35	37.5		37	1.2			
11.6	Mark N	*a*		37	50		35	20						
		b		38	20		36	10						
6.7		*m*		38	5		35	45		36	55.0	1	36	58.1
21 14.0	Mark S	*a*	1	34	30		38	0						
		b	181	35	25		38	40						
		m		34	57.5		38	20		36	38.8			
19.8	Mark N	*a*		35	10		38	0						
		b		35	50		38	50						
16.9		*m*		35	30		38	25		36	57.5	1	36	48.2
1 19.8	Mark S	*a*	1	38	50		36	15						
		b	181	39	50		37	10						
		m		39	20		36	42.5		38	1.2			
27.0	Mark N	*a*		38	50		35	45						
		b		39	35		36	40						
23.4		*m*		39	12.5		36	12.5		37	42.5	1	37	51.9
	Mark S	*a*												
		b												
		m												
	Mark N	*a*												
		b												
		m												

FOR FINDING THE DECLINATION.

Place Nemuro.

δ	Observer	Recorder	Remark
° ′ ″			
4° 4′ 56″	Nakamura	Imamura	
4° 5′ 16″	„	Nakamura	
4° 5′ 26″	„	„	
4° 4′ 22″	„	„	Oct. 7th.

SPECIMEN PAGE OF OBSERVATIONS FOR FINDING THE DIP.

Place Imaiti. *Date July 31st*, 1896.
Instrument No. 2. *Observer* SANO.
Needle No. 1. *Recorder* SUTŌ.
Begun $3^h\ 3^m.2$ p.m. *Ended* $3^h\ 38^m.3$ p.m.

	Axis of needle	Circle	Adjusted to upper end	Adjusted to lower end	Mean
Meridian	Direct	S	23° 55′	23° 38′	
		N	22° 56′	23° 16′	
		Mean	23° 25′.5	23° 27′	23° 26′ 25
	Reversed	N	23° 26′	23° 30′	
		S	23° 32′	23° 18′	
		Mean	23° 29′	23° 28′.5	23° 28′.75
				Azimuth	23° 27′.5

	Circle	Adjusted to	*a* (vernier)	*b* (vernier)	Mean	*a* (vernier)	*b* (vernier)	Mean
Axis of needle direct	E	up	49° 39′	° 40′		49° 47′	° 47′	
		down	45′	46′		47″	47′	
		Mean	42′	43′	49° 42′.5	47′	47′	49° 47′.0
	W	up	52′	52′		50° 24′	24′	
		down	47′	47′		24′	24′	
		Mean	49′.5	49′.5	49′.5	24′	24′	50° 24′.0
Axis of needle reversed	W	up	49′	50′		05′	06′	
		down	52′	52′		00′	01′	
		Mean	50′.5	51′.0	50′.75	02′.5	03′.5	50° 03′.0
	E	up	35′	36′		02′	03′	
		down	33′	35′		08′	09′	
		Mean	34′	35′.5	34′.75	05′.0	06′.0	50° 05′.5
Mean of Means					49° 44′.4	Mean of Means		50° 04′.9
			Dip		49° 54′.6			

early in the morning, or at the noon the sun's transit, except when prevented by unfavourable weather, for which cases the rate and error were interpolated from the previous and succeeding observations.

As the state of the weather can not usually be relied upon, the first chance of making astronomical observations was always taken advantage of, be it the sun or the stars either in altitude or meridian passage. The comparatively large telescope was designed for this reason, to enable us to observe large stars through mists or thin clouds; a still larger aperture, though sacrificing a little definition, will be recommendable in future.

§ 6. Diurnal Variation.

The corrections for diurnal variations are not applied, being eliminated to a large extent by taking the mean of three or more sets of observations of all the magnetic elements in each of principal stations (see Complete List of Observations in the Appendix). A set of experiment for the determination of the horizontal intensity and the dip was made in the morning about 8 or 9 a.m., another near the middle of the day about 1 or 2 p.m. and the last in the evening about 6, and often a set was made at night after finishing the astronomical work, when that was done under favourable circumstances. Strict times of observations could not be followed on account of the conditions of travelling and also because of the astronomical observations, which had to be taken at whatever time that was available.

Declination was observed at as many intervals as possible, so as to enable us to draw the diurnal curves (see Pl. I. to Pl. LIX.) at each principal station. The mean value is obtained

by planimetric method, and is indicated by a dotted line in the plate, where only a part of the curve is obtained the mean is inferred from those of the neighbouring curves.

The diurnal curve was also useful in warning the observers of magnetic storms, during which the regular observations had to be sustained.

§ 7. Reduction to the Epoch 1895.0.

In order to reduce the observed values to a common epoch, we require to know the secular variation of each magnetic element. It was hoped by taking observations at the stations of the previous survey of 1887 this might be found at each place. On carrying out the work, however, it was found that observations in most of the old stations were impracticable on account of changes that have since taken place in their surroundings. Although many of the names in the list of observations are the same, there are only 7 places where regular observations were made at the identical spot; the values of dip and horizontal intensity given in the list under the heading "Station 1887" were made again now for the sake of reference even though the surroundings had somewhat changed. Under these circumstances it was considered not expedient to derive the annual variation in the way first thought of.

The method used is to find mean secular variations by comparing the empirical expressions of magnetic elements in terms of longitude and latitude, which were already worked out by Prof. Knott, with those of the present treated in similar manner, supposing those two sets of values to represent the magnetic state of the country at the epochs corresponding to the means of

the times of observations in the two surveys: these fell respectively 1887.51 and 1895.12 during which interval the variation is assumed to have been uniform; thus:—

$$
\begin{array}{lll}
\delta = 5^\circ\ 05'.6 + 0'.286\,\Delta\varphi - 0'.144\,\Delta\lambda - 0'.000294(\Delta\lambda)^2 & \text{at} & 1895.12 \\
\delta = 4^\circ\ 54'.4 + 0'.241\,\Delta\varphi - 0'.133\,\Delta\lambda - 0'.000231(\Delta\lambda)^2 & ,, & 1887.61 \\
\hline
\Delta\delta = \quad 11'.2 + 0'.045\,\Delta\varphi - 0'.011\,\Delta\lambda - 0'.000063(\Delta\lambda)^2 & \text{for} & 7.51 \text{ years.}
\end{array}
$$

and $\dfrac{\Delta\delta}{\Delta t} = 1'.49 + 0'.00599\,\Delta\varphi - 0'.00146\,\Delta\lambda - 0'.0000084(\Delta\lambda)^2$ per annum

where $\Delta\varphi = (\varphi - 37^\circ)'$, $\Delta\lambda = (\lambda - 138^\circ)'$ * expressed in minutes

similarly

$$
\begin{array}{lll}
\theta = 50^\circ\ 47'.4 + 1'.068\,\Delta\varphi - 0'.0792\,\Delta\lambda & \text{at} & 1895.12 \\
\theta = 50^\circ\ 54'.9 + 1'.146\,\Delta\varphi - 0'.1556\,\Delta\lambda & ,, & 1887.61 \\
\hline
\Delta\theta = \quad -\ 7'.5 - 0'.078\,\Delta\varphi + 0'.0764\,\Delta\lambda & \text{for} & 7.51 \text{ years.} \\
\dfrac{\Delta\theta}{\Delta t} = \quad -\ 1'.00 - 0'.0104\,\Delta\varphi + 0'.0102\,\Delta\lambda & & \text{per annum}
\end{array}
$$

$$
\begin{array}{lll}
H = 29317^{\gamma} - 6^{\gamma}.12\,\Delta\varphi - 1^{\gamma}.48\,\Delta\lambda & \text{at} & 1895.12 \\
H = 29247^{\gamma} - 6^{\gamma}.17\,\Delta\varphi - 1^{\gamma}.17\,\Delta\lambda & ,, & 1887.61 \\
\hline
\Delta H = \quad 70^{\gamma} + 0^{\gamma}.05\,\Delta\varphi - 0^{\gamma}.31\,\Delta\lambda & \text{for} & 7.51 \text{ years.} \\
\dfrac{\Delta H}{\Delta t} = \quad 9^{\gamma}.33 + 0^{\gamma}.0067\,\Delta\varphi - 0^{\gamma}.041\,\Delta\lambda & & \text{per annum.}
\end{array}
$$

The values for 1895.12 were derived from the results of observations at 288 stations which were seemingly free from extravagant local disturbances by the method of least squares, a process somewhat superfluous but useful in training the computers for further work. Tables II, III, IV, give these annual variations for each degree of longitude and latitude throughout the country and were used in reducing the values to the epoch 1895.0.

* The origin is taken at round number of degrees instead of the mean value for facilitating the use of the formulæ, the slight increase of probable errors in the computed values thus caused is quite insignificant.

TABLE

ANNUAL VARIATION

λ / φ	129°	130°	131°	132°	133°	134°	135°	136°	137°
46°									
45°									
44°									
43°									
42°									
41°									
40°									
39°									
38°									+1'.90
37°								+1'.54	+1'.55
36°				+0'.58	+0'.82	+1'.01	+1'.13	+1'.19	+1'.20
35°			−0'.08	+0'.23	+0'.47	+0'.65	+0'.78	+0'.84	+0'.85
34°		−0'.79	−0'.43	−0'.12	+0'.12	+0'.30	+0'.43	+0'.49	+0'.49
33°	−1'.57	−1'.15	−0'.78	−0'.48	−0'.23	−0'.05	+0'.08	+0'.14	
32°		−1'.50	−1'.13	−0'.83	−0'.58				
31°		−1'.85	−1'.48	−1'.18					
φ / λ	129°	130°	131°	132°	133°	134°	135°	136°	137°

II.

OF DECLINATION. (*See Table* VIII.)

138°	139°	140°	141°	142°	143°	144°	145°	146°	λ / φ
				+3′82					46°
			+3′76	+3′46	+3′10				45°
			+3′41	+3′11	+2′75	+2′33	+1′85	+1′31	44°
		+3′30	+3′06	+2′76	+2′40	+1′98	+1′50	+0′96	43°
		+2′95	+2′71	+2′41	+2′05				42°
		+2′60	+2′36	+2′06					41°
	+2′42	+2′25	+2′01	+1′71					40°
	+2′07	+1′90	+1′66	+1′36					39°
+1′84	+1′72	+1′54	+1′31	+1′01					38°
+1′49	+1′37	+1′19	+0′95	+0′66					37°
+1′14	+1′02	+0′84	+0′61						36°
+0′79	+0′67	+0′49	+0′25						35°
+0′44	+0′32	+0′14							34°
									33°
									32°
									31°
138°	139°	140°	141°	142°	143°	144°	145°	146°	φ / λ

TABLE

ANNUAL VARIA-

φ \ λ	129°	130°	131°	132°	133°	134°	135°	136°	137°
46°									
45°									
44°									
43°									
42°									
41°									
40°									
39°									
38°									−2'.24
37°								−2'.22	−1'.61
36°				−4'.05	−3'.44	−2'.82	−2'.21	−1'.60	−0'.99
35°			−4'.03	−3'.42	−2'.81	−2'.20	−1'.59	−0'.98	−0'.36
34°		−4'.02	−3'.41	−2'.80	−2'.19	−1'.58	−0'.96	−0'.35	+0'.26
33°	−4'.01	−3'.40	−2'.79	−2'.18	−1'.56	−0'.95	−0'.34	+0'.27	
32°		−2'.78	−2'.16	−1'.55	−0'.94				
31°		−2'.15	−1'.54	−0'.93					
φ \ λ	129°	130°	131°	132°	133°	134°	135°	136°	137°

III.

TION OF DIP.

138°	139°	140°	141°	142°	143°	144°	145°	146°	λ / φ
				−4'.17					46°
			−4'.16	−3'.54	−2'.93				45°
			−3'.53	−2'.92	−2'.31	−1'.70	−1'.08	−0'.47	44°
		−3'.52	−2'.91	−2'.30	−1'.68	−1'.07	−0'.46	+0'.15	43°
		−2'.90	−2'.28	−1'.67	−1'.06				42°
		−2'.27	−1'.66	−1'.05					41°
	−2'.26	−1'.65	−1'.04	−0'.42					40°
	−1'.64	−1'.02	−0'.41	+'.020					39°
−1'.62	−1'.01	−0'.40	+0'.21	+0'.82					38°
−1'.00	−0'.39	+0'.22	+0'.84						37°
−0'.38	+0'.24	+0'.85	+1'.46						36°
+0'.25	+0'.86	+1'.47	+2'.08						35°
+0'.87	+1'.48	+2'.10							34°
									33°
									32°
									31°
138°	139°	140°	141°	142°	143°	144°	145°	146°	φ / λ

TABLE

ANNUAL VARIATION OF

φ \ λ	129°	130°	131°	132°	133°	134°	135°	136°	137°
46°									
45°									
44°									
43°									
42°									
41°									
40°									
39°									
38°									+12′.2
37°								+14′.3	+11′.8
36°					+21′.2	+18′.8	+16′.3	+13′.8	+11′.4
35°			+25′.7	+23′.3	+20′.8	+18′.4	+15′.9	+13′.4	+11′.0
34°		+27′.8	+25′.3	+22′.9	+20′.4	+18′.0	+15′.5	+13′.0	+10′.6
33°	+29′.9	+27′.4	+24′.9	+22′.5	+20′.0	+17′.6	+15′.1	+12′.6	
32°		+27′.0	+24′.5	+22′.1	+19′.6				
31°		+26′.6	+24′.1	+21′.7					
φ / λ	129°	130°	131°	132°	133°	134°	135°	136°	137°

IV.

HORIZONTAL INTENSITY.

138°	139°	140°	141°	142°	143°	144°	145°	146°	λ / φ
				+3.1γ					46°
			+5.2γ	+2.7γ	+0.2γ				45°
			+4.8γ	+2.3γ	−0.2γ	−2.6γ	−5.1γ	−7.5γ	44°
		+6.8γ	+4.3γ	+1.9γ	−0.6γ	−3.0γ	−5.5γ	−7.9γ	43°
		+6.4γ	+4.0γ	+1.5γ	−1.0γ				42°
		+6.0γ	+3.6γ	+1.1γ					41°
	+8.1γ	+5.6γ	+3.2γ	+0.7γ					40°
	+7.7γ	+5.2γ	+2.7γ	+0.3γ					39°
+9.7γ	+7.3γ	+4.8γ	+2.3γ	−0.1γ					38°
+9.3γ	+6.9γ	+4.4γ	+1.9γ						37°
+8.9γ	+6.5γ	+4.0γ	+1.5γ						36°
+8.5γ	+6.1γ	+3.6γ	+1.1γ						35°
+8.1γ	+5.7γ	+3.2γ							34°
									33°
									32°
									31°
138°	139°	140°	141°	142°	143°	144°	145°	146°	φ / λ

This method gives only the average secular variations, the results are therefore partly over-corrected and partly under-corrected especially in regions under the process of tectonic change, some of which had already drawn our attention.* To minimize such effects the nearest round number of years to the mean time of all the observations is taken as the epoch to which all the observations are reduced, the amount of maximum correction being about one and a half year either way.

It is to be remembered in this respect that three destructive earthquakes have occurred between the previous survey and the end of the present: the strongest in 1891 in the district of Mino-Owari and two less severe, one in Sakata in the winter of 1893 and another in Tōkyō in the summer of 1896.

§ 8. Reduction to the Sea Level.

To reduce all the observations to the sea level, the vertical variations of the magnetic elements were derived in the way discussed in § 11 below, using the first approximation of mean isomagnetics used in deducing annual variations. The corrections are quite sensible in some of stations which are two or three kilometers high and affect materially the amount of disturbing forces in such altitudes.

§ 9. Isomagnetics.

The reduced values of magnetic elements were put on maps, one for each element, and isomagnetics were drawn by the tentative method of interpolation, taking care to give slight allowances with respect to second differences. In some places it was

* The Disturbances of Isomagnetics attending the Mino-Owari Earthquake of 1891, A. Tanakadate and H. Nagaoka, Journal of Science College, Vol. V, part II.

difficult to decide which course the curves will take, and recourse had to be made to the *common sense estimate* or *guess work*. To draw those curves with accuracy "over even the smoothest hillside" to use Lord Kelvin's words with regard to the distribution of atmospheric electricity, "would infinitely transcend human mathematical power."

Mr. S. Nakamura and the writer starting separately on different sheets obtained curves agreeing in general appearance, but in particular details they differed widely in some places, the curves in Maps 1, 2, and 3 drawn on transparent sheets, are a compromise made by the writer. Actual values at each station, corresponding to the nearest mark ⊙ on the maps, are given along with the curves, so that they can be reconstructed by any one to suit his own view. The controversy which has risen in this respect in the result of previous surveys is thus avoided. Those curves were prepared on a larger scale of linear dimension five times those given in this volume and were reduced by pantograph.

§ 10. Mean Isomagnetics.

The mean isomagnetics are represented by empirical formulae expressing magnetic elements in terms of longitude and latitude in the usual way. Number of terms to be taken in such expressions depends upon the character of distribution of these elements in the country. By way of trial these elements were calculated for 12 points in Japan from the table of magnetic elements for the globe corresponding to 1885.0 as given by Prof. Ad. Schmidt,* in which the expansion is carried to seventh harmonics. Table V shows the distribution of these points.

* Aus dem Archiv der Deutschen Seewarte XXI Jahrgang 1898 No. 2. p. 61.

TABLE V.

Magnetic Elements Calculated from X, Y, Z, Expressed in Spherical Harmonics for 1885.0 by *Prof. Ad. Schmidt.*

λ / φ		130°.0	132°.5	135°.0	137°.5	140°.0	142°.5	145°.0
45°.0	δ						3°51′.2	
	θ						12 59°15′.8	
	H						25473.6	
42°.5	δ					3°41′.3		3°06′.4
	θ					10 57°07′.4		11 56°22′.5
	H					26640.2		26559.0
40°.0	δ					3°14′.3	2°59′.2	
	θ					8 54°27′.0	9 54°06′.2	
	H					27740.3	27657.6	
37°.5	δ					2°45′.3		
	θ					7 51°41′.4		
	H					28768.2		
35°.0	δ		2°34′.6	2°32′.8	2°26′.2	2°14′.9		
	θ		3 49°47′.5	4 49°27′.1	5 49°06′.2	6 48°45′.0		
	H		30105.5	30043.9	29888.0	29728.9		
32°.5	δ	2°05′.6		2°03′.6				
	θ	1 46°56′.0		2 46°18′.5				
	H	31375.9		31009.1				

These values put into linear equations for horizontal force and dip, and parabolic formula for declination give residuals whose maximum values are 28.$^{\gamma}$6 for the horizontal force, 16.′6 for the dip and 16.′4 for the declination: put into quadratic form they come out

$$\delta = 2^\circ\ 48'.50 - 3'.90\,\Delta\lambda + 11'.63\,\Delta\varphi - 0'.380(\Delta\lambda)^2 + 0'.114(\Delta\lambda)(\Delta\varphi) - 0'.135(\Delta\varphi)^2$$
$$\pm.44 \quad \pm.14 \qquad \pm.14 \qquad \pm.043 \qquad \pm.083 \qquad \pm.041$$

$$\theta = 51^\circ\ 23'.58 - 8'.41\,\Delta\lambda + 69'.76\,\Delta\varphi - 0'.003(\Delta\lambda)^2 - 0'.160(\Delta\lambda)(\Delta\varphi) - 0'.672(\Delta\varphi)^2$$
$$\pm.65 \quad \pm.20 \qquad \pm.21 \qquad \pm.064 \qquad \pm.122 \qquad \pm.060$$

$$H = 29069''.4 - 49''.72\,\Delta\lambda - 404''.60\,\Delta\varphi - 0''.416(\Delta\lambda)^2 + 6''.544(\Delta\lambda)(\Delta\varphi) - 5''.680(\Delta\varphi)^2$$
$$\pm2.0 \quad \pm0.62 \qquad \pm0.61 \qquad \pm0.194 \qquad \pm0.374 \qquad \pm0.184$$

where $\Delta\lambda = (\lambda - 138^\circ)^\circ$ and. $\Delta\varphi = (\varphi - 37^\circ)^\circ$ expressed in degrees.

The values calculated from these expressions are compared with the given data in Table VI.,

TABLE VI.

Magnetic Elements calculated as Quadratic Functions of Longitude and Latitude, from the Data given by Spherical Harmonics for 1885.0.

No.	Declination.			Dip.			Horizontal Intensity.		
	Data.	Cal.	Dif.	Data.	Cal.	Dif.	Data.	Cal.	Dif.
1	2° 05'.6	2° 04'.5	1'.1	46° 56'.0	46° 57'.4	−1'.4	31375.9	31381.9	−6.0
2	2° 03'.6	2° 03'.2	0.4	46° 18'.5	46° 19'.1	−0.6	31009.1	31008.9	0.2
3	2° 34'.6	2° 36'.0	−1.4	49° 47'.5	49 45'.8	1.7	30195.5	30188.8	6.7
4	2° 32'.8	2° 33'.7	−0.9	49° 27'.1	49° 25'.6	1.5	30043.9	30040.6	3.3
5	2° 26'.2	2° 26'.7	−0.5	49° 06'.2	49 05'.4	0.8	29888.0	29887.2	0.8
6	2° 14'.9	2° 14'.9	0	48° 45'.0	48 45'.2	−0.2	29728.9	29728.6	0.3
7	2° 45'.3	2° 45'.1	0.2	51° 41'.4	51 41'.3	0.1	28768.2	28771.1	−2.9
8	3° 14'.3	3° 13'.6	0.7	54° 27'.0	54 20'.0	−2.0	27740.3	27742.6	−2.3
9	2° 59'.2	2° 58'.6	0.6	54° 06'.2	54 06'.7	−0.5	27657.6	27660.6	−3.0
10	3° 41'.3	3° 4[illegible]'.3	1.0	57° 07'.4	57° 08'.3	−0.9	26640.2	26643.1	−2.9
11	3° 06'.4	3° 07'.0	−0.6	56° 22'.5	56° 21'.7	0.8	26559.0	26555.7	3.3
12	3° 51'.2	3° 51'.8	−0.6	59° 15'.8	59° 15'.0	0.8	25473.6	25472.4	1.2

from which we see that the quadratic formulæ are sufficiently near for the purpose. Some of the coefficients whose values are less than probable errors may be omitted; but since the omission of only one or two terms little lightens the labour of computation, they are all kept for the sake of uniformity.

The reduced values of magnetic elements in 241* stations which were seemingly free from large local disturbances were treated in the same manner and gave

$$\delta = 5^\circ\ 03'.15 - 8'.274\,\Delta\lambda + 17'.365\,\Delta\varphi - 0'.649\,\overline{\Delta\lambda}^2 - 0'.236\,\overline{\Delta\lambda\Delta\varphi} - 0'.075\,\overline{\Delta\varphi}^2$$
$$\pm.68 \quad \pm.291 \qquad \pm.345 \qquad \pm.096 \qquad \pm.187 \qquad \pm.103$$

$$\theta = 50^\circ\ 50'.61 - 7'.578\,\Delta\lambda + 68'.253\,\Delta\varphi + 0'.296\,\overline{\Delta\lambda}^2 - 0'.438\,\overline{\Delta\lambda\Delta\varphi} - 0'.482\,\overline{\Delta\varphi}^2$$
$$\pm.58 \quad \pm.247 \qquad \pm.292 \qquad \pm.081 \qquad \pm.158 \qquad \pm.087$$

$$H = 29401^{\gamma}.4 - 74^{\gamma}.97\,\Delta\lambda - 362^{\gamma}.45\,\Delta\varphi + 3^{\gamma}.497\,\overline{\Delta\varphi}^2 - 1^{\gamma}.316\,\overline{\Delta\lambda\Delta\varphi} - 4^{\gamma}.331\,\overline{\Delta\varphi}^2$$
$$\pm8.1 \quad \pm3.45 \qquad \pm4.10 \qquad \pm1.141 \qquad \pm2.216 \qquad \pm1.222$$

where $\Delta\lambda = (\lambda - 138^\circ)^\circ$ and $\Delta\varphi = (\varphi - 37^\circ)^\circ$ expressed in degrees. Expressed in minutes they become

$$\delta = 5^\circ\ 03'.15 - 0'.1379\,\Delta\lambda + 0'.2894\,\Delta\varphi - 0'.0001803\,\overline{\Delta\lambda}^2$$
$$- 0'.0000657\,\overline{\Delta\lambda\Delta\varphi} - 0'.0000209\,\overline{\Delta\varphi}^2$$

$$\theta = 50^\circ\ 50'.61 - 0'.1263\,\Delta\lambda + 1'.1376\,\Delta\varphi + 0'.0000821\,\overline{\Delta\lambda}^2$$
$$- 0'.0001218\,\Delta\lambda\Delta\varphi - 0'.0001340\,\overline{\Delta\varphi}^2$$

$$H = 29401^{\gamma}.4 - 1^{\gamma}.2494\,\Delta\lambda - 6^{\gamma}.0409\,\Delta\varphi + 0^{\gamma}.0009713\,\overline{\Delta\lambda}^2$$
$$- 0^{\gamma}.0003656\,\Delta\lambda\Delta\varphi - 0^{\gamma}.0012032\,\overline{\Delta\varphi}^2$$

The computation was carried in duplicate beside being controlled in the usual way. The mean probable error of a single observation is

* These stations are distinguished by non-bracketed numbers in Tables XV and XVI.

$\pm 6'.46$	in the	Declination,
$\pm 5'.47$	" "	Dip,
$\pm 73.^{\gamma}2$	" "	Horizontal Intensity.

The probable errors of the empirical coefficients are not in strict sense the result of accidental errors of observations, but are chiefly due to the amount of local disturbances; if we omit a few of the stations which give large residuals, they will be greatly reduced, or if we include some of the stations that were omitted in the equations of condition they will be much increased: they are put here simply to indicate some measure of certainty in the values of these coefficients calculated by the definite method, and also to show the danger of applying these formulæ to too large values of co-ordinates; their extreme amounts within the country are:—

at $\begin{cases} \Delta\lambda = 0 \\ \Delta\varphi = 0 \end{cases}$	at $\begin{cases} \Delta\lambda = \pm 8^\circ \\ \Delta\varphi = \pm 8^\circ \end{cases}$	
$\pm 0'.68$	$\pm\ 15'.5$	in the Declination,
$\pm 0'.58$	$\pm\ 13'.0$	" " Dip,
$\pm 8.^{\gamma}1$	$\pm 183.^{\gamma}1$	" " Horizontal Intensity.

Their large increase with the co-ordinates is caused principally by the smallness of weight in the coefficients of $\Delta\lambda\Delta\varphi$, and they can be diminished by taking simpler formulæ than the complete quadratics, the effect of increase in the weights of the coefficients over-compensating the increase of residuals.

This is exemplified in the following reduction of the declination by the parabolic formula, made for the purpose of finding better value of the annual variation by comparing with the expression of the same form obtained in the previous survey.

The same data give in this case, $\varDelta\lambda$ and $\varDelta\varphi$ having the same meaning as above expressed in degrees,

$$\delta = 5^\circ\ 02'\!.47 - 8'\!.093\varDelta\lambda + 16'\!.622\varDelta\varphi - 0'\!.840\overline{\varDelta\lambda}^2$$
$$\pm.59\quad \pm.271 \qquad \pm.265 \qquad \pm.033$$

For the co-ordinates $\varDelta\lambda = \pm 8^\circ$ and $\varDelta\varphi = \pm 8^\circ$, the probable error becomes $\pm 3.'7$ instead of $\pm 15.'5$, although the mean probable error of a single observation is greater, as it should, namely $\pm 6.'53$ against $\pm 6.'46$ of the previous result.

With this value of δ, its annual variation takes the form

$$\delta = 5^\circ\ 02'\!.5 - 8'\!.09\varDelta\lambda + 16'\!.62\varDelta\varphi - 0'\!.840\overline{\varDelta\lambda}^2 \qquad \text{at} \qquad 1895.12$$
$$\delta = 4^\circ\ 54'\!.4 - 7'\!.98\varDelta\lambda + 14'\!.46\varDelta\varphi - 0'\!.832\overline{\varDelta\lambda}^2 \qquad \text{at} \qquad 1887.61$$

$$\delta = \qquad 8'\!.1 - 0'\!.11\varDelta\lambda + \ 2'\!.16\varDelta\varphi - 0'\!.01\varDelta\lambda^2 \qquad \text{for} \qquad 7.51 \text{ years.}$$

$$\frac{\varDelta\delta}{\varDelta t} = \qquad 1'\!.08 - 0'\!.015\varDelta\lambda + \ 0'\!.288\varDelta\varphi - 0'\!.0013\overline{\varDelta\lambda}^2 \text{ per annum}$$

which is preferable to the provisional formula given in p. 23 above in estimating mean declination for few years following the epoch.

The values of the magnetic elements calculated from these formulæ for every round number of degrees of longitude and latitude in the country are given in Tables VII to XIV, and in Tables XV and XVI those calculated for each of the stations together with the observed values and their differences are given.

The curves in blue colour in Maps 1, 2, and 3 are traced from these equations and can be compared with the isomagnetics drawn by tentative method by laying those sheets closely under them. In Maps 4, 5, 6 and 7 the total force and its rectangular components are drawn, the differences of the observed and cal-

culated values being given in blue and red figures in each so that the amounts of local disturbances can be seen at a glance.

Comparing the equations of p. 34 with those of p. 33, or Table V with Tables VII, IX and X below, we notice that they differ by a far greater amount than can be ascribed to errors of observations or to secular variation. Whether this is due to want of terms in the harmonic expansion or to that of data in this part of the globe remains still to be seen.

TABLE

Declinations at 1895.0 at the Intersections of entire Degrees

$\delta = 5° \; 3'.15 - 8'.274(\lambda - 138°)° + 17'.365(\varphi - 37°)° - 0'.649$

φ \ λ	129°	130°	131°	132°	133°	134°	135°	136°	137°
46°									
45°									
44°									
43°									
42°									
41°									
40°									
39°									
38°									5° 28'.3 7.9
									17.5
37°								5° 17'.1 6.3	5° 10'.8 7.6
								17.9	17.7
36°				5° 10'.6 0.9	5° 9'.7 2.2	5° 7'.5 3.5	5° 4'.0 4.8	4° 59'.2 6.1	4° 53'.1 7.4
				19.0	18.8	18.6	18.3	18.1	17.8
35°			4° 50'.9 0.7	4° 51'.6 0.7	4° 50'.9 2.0	4° 48'.9 3.2	4° 45'.7 4.6	4° 41'.1 5.8	4° 35'.3 7.2
			19.4	19.2	18.9	18.6	18.5	18.2	18.0
34°		4° 29'.4 2.1	4° 31'.5 0.9	4° 32'.4 0.4	4° 32'.0 1.7	4° 30'.3 3.1	4° 27'.2 4.3	4° 22'.9 5.6	4° 17'.3 6.9
		19.8	19.5	19.3	19.1	18.9	18.6	18.4	
33°	4° 5'.9 3.7	4° 9'.6 2.4	4° 12'.0 1.1	4° 13'.1 0.2	4° 12'.9 1.5	4° 11'.4 2.8	4° 8'.6 4.1	4° 4'.5	
		20.0	19.7	19.5	19.2				
32°		3° 49'.6 2.7	3° 52'.3 1.3	3° 53'.6 0.1	3° 53'.7				
		20.1	19.9	19.6					
31°		3° 29'.5 2.9	3° 32'.4 1.6	3° 34'.0					
φ / λ	129°	130°	131°	132°	133°	134°	135°	136°	137°

VII.

of Longitude and Latitude, calculated by the Formula,

$\{(\lambda-138°)°\}^2-0'.236(\lambda-138°)°(\varphi-37°)°-0'.075\{(\varphi-37°)°\}^2$

φ \ λ	138°		139°		140°		141°		142°		143°		144°		145°		146°
46°									6° 41'.3								
									15.1								
45°							6° 40'.9	14.7	6° 26'.2	16.0	6° 10'.2						
							15.5		15.3		15.1						
44°							6° 25'.4	14.5	6° 10'.9	15.8	5° 55'.1	17.0	5° 38'.1	18.4	5° 19'.7	19.7	5° 0'.0
							15.7		15.4		15.2		15.0		14.7		14.5
43°					6° 22'.6	12.9	6° 9'.7	14.2	5° 55'.5	15.6	5° 39'.9	16.8	5° 23'.1	18.1	5° 5'.0	19.5	4° 45'.5
					16.0		15.8		15.6		15.3						
42°					6° 6'.6	12.7	5° 53'.9	14.0	5° 39'.9	15.3	5° 24'.6						
					16.2		16.0		15.8								
41°					5° 50'.4	12.5	5° 37'.9	13.8	5° 24'.1								
					16.4		16.1		15.9								
40°			5° 44'.9	10.9	5° 34'.0	12.2	5° 21'.8	13.6	5° 8'.2								
			16.7		16.5		16.3		16.0								
39°			5° 28'.2	10.7	5° 17'.5	12.0	5° 5'.5	13.3	4° 52'.2								
			16.9		16.7		16.4		16.2								
38°	5° 20'.4	9.1	5° 11'.3	10.5	5° 0'.8	11.7	4° 49'.1	13.1	4° 36'.0								
	17.2		17.1		16.8		16.6										
37°	5° 3'.2	9.0	4° 54'.2	10.2	4° 44'.0	11.5	4° 32'.5										
	17.5		17.2		17.0		16.7										
36°	4° 45'.7	8.7	4° 37'.0	10.0	4° 27'.0	11.2	4° 15'.8										
	17.6		17.3		17.1		16.9										
35°	4° 28'.1	8.4	4° 19'.7	9.8	4° 9'.9	11.0	3° 58'.9										
	17.7		17.5		17.3												
34°	4° 10'.4	8.2	4° 2'.2	9.6	3° 52'.6												
33°																	
32°																	
31°																	
λ / φ	138°		139°		140°		141°		142°		143°		144°		145°		146°

TABLE

Annual Variations of Declination at the Intersections of entire Degrees of Longitude and Latitude

φ \ λ	129°	130°	131°	132°	133°	134°	135°	136°	137°
46°									
45°									
44°									
43°									
42°									
41°									
40°									
39°									
38°									1'.38
37°								1'.10	1'.09
36°				0'.84	0'.83	0'.83	0'.83	0'.82	0'.81
35°		0'.54	0'.55	0'.55	0'.55	0'.54	0'.54	0'.53	0'.52
34°		0'.25	0'.26	0'.26	0'.26	0'.26	0'.25	0'.24	0'.23
33°	−0'.04	−0'.04	−0'.03	−0'.03	−0'.03	−0'.03	−0'.04	−0'.05	
32°		−0'.32	−0'.32	−0'.32	−0'.32				
31°		−0'.61	−0'.61	−0'.60					
φ / λ	129°	130°	131°	132°	133°	134°	135°	136°	137°

VIII.

calculated by the Formula $\frac{\Delta\delta}{\Delta t} = 1'08 - 0'015(\lambda - 138°)° + 0'288(\varphi - 37°)° - 0'0013\{(\lambda - 138°)°\}^2$.

138°	139°	140°	141°	142°	143°	144°	145°	146°	λ / φ
				3'59					46°
			3'33	3'30	3'28				45°
			3'04	3'02	2'99	2'96	2'93	2'89	44°
		2'77	2'75	2'73	2'70	2'67	2'64	2'60	43°
		2'48	2'46	2'44	2'41				42°
		2'19	2'17	2'15					41°
	1'93	1'91	1'89	1'86					40°
	1'64	1'62	1'60	1'57					39°
1'37	1'35	1'33	1'31	1'29					38°
1'08	1'06	1'04	1'02						37°
0'79	0'78	0'76	0'74						36°
0'50	0'49	0'47	0'45						35°
0'22	0'20	0'18							34°
									33°
									32°
									31°
138°	139°	140°	141°	142°	143°	144°	145°	146°	φ / λ

TABLE

Dips at 1895.0 at the Intersections of entire Degrees

$\theta = 50°\ 50'.61 - 7'.578(\lambda - 138°)° + 68'.253(\varphi - 37°)° + 0'.296$

φ \ λ	129°	130°	131°	132°	133°	134°	135°	136°	137°
46°									
45°									
44°									
43°									
42°									
41°									
40°									
39°									
38°									52° 6'.7 8·3
									68·2
37°								51° 6'.9 8·4	50° 58'.5 7·9
								69·6	69·2
36°				50° 35'.4 10·4	50° 25'.0 9·8	50° 15'.2 9·2	50° 6'.0 8·7	49° 57'.3 8·0	49° 49'.3 7·4
				72·4	71·9	71·5	71·1	70·5	70·1
35°			49° 33'.6 10·6	49° 23'.0 9·9	49° 13'.1 9·4	49° 3'.7 8·8	48° 54'.9 8·1	48° 46'.8 7·6	48° 39'.2 7·0
			73·8	73·3	72·9	72·4	71·9	71·6	71·1
34°		48° 30'.5 10·7	48° 19'.8 10·1	48° 9'.7 9·5	48° 0'.2 8·9	47° 51'.3 8·3	47° 43'.0 7·8	47° 35'.2 7·1	47° 28'.1 6·6
		75·1	74·7	74·2	73·8	73·4	73·0	72·5	
33°	47° 26'.2 10·8	47° 15'.4 10·3	47° 5'.1 9·6	46° 55'.5 9·1	46° 46'.4 8·5	46° 37'.9 7·9	46° 30'.0 7·3	46° 22'.7	
		76·1	75·6	75·3	74·8				
32°		45° 59'.3 9·8	45° 49'.5 9·3	45° 40'.2 8·6	45° 31'.6				
		77·1	76·7	76·1					
31°		44° 42'.2 9·4	44° 32'.8 8·7	44° 24'.1					
φ / λ	129°	130°	131°	132°	133°	134°	135°	136°	137°

IX.

of Longitude and Latitude calculated by the Formula

$\{(\lambda-138^\circ)^\circ\}^2 - 0'.438(\lambda-138^\circ)^\circ(\varphi-37^\circ)^\circ - 0'.4$[illegible]$2\{(\varphi-37^\circ)^\circ\}^2$.

138°	139°	140°	141°	142°	143°	144°	145°	146°	λ / φ
				59° 44'.5					46°
				58·3					
			58° 55'.2 9·0	58° 46'.2 8·5	58° 37'.7				45°
			59·7	59·3	58·8				
			57° 55'.5 8·6	57° 46'.9 8·0	57° 38'.9 7·4	57° 31'.5 6·8	57° 24'.7 6·2	57° 18'.5	44°
			60·7	60·2	59·8	59·3	58·9	58·5	
		57° 3'.5 8·7	56° 54'.8 8·1	56° 46'.7 7·6	56° 39'.1 6·9	56° 32'.2 6·4	56° 25'.8 5·8	56° 20'.0	43°
		62·0	61·6	61·2	60·7				
		56° 1'.5 8·3	55° 53'.2 7·7	55° 45'.5 7·1	55° 38'.4				42°
		63·1	62·6	62·2					
		54° 58'.4 7·8	54° 50'.6 7·3	54° 43'.3					41°
		64·0	63·6	63·1					
	54° 2'.4 8·0	53° 54'.4 7·4	53° 47'.0 6·8	53° 40'.2					40°
	65·4	64·9	64·5	64·1					
	52° 57'.0 7·5	52° 49'.5 7·0	52° 42'.5 6·4	52° 36'.1					39°
	66·3	66·0	65·5	65·1					
51° 58'.4 7·7	51° 50'.7 7·2	51° 43'.5 6·5	51° 37'.0 6·0	51° 31'.0					38°
67·8	67·4	66·9	66·5						
50° 50'.6 7·3	50° 43'.3 6·7	50° 36'.6 6·1	50° 30'.5						37°
68·7	68·3	67·8	67·4						
49° 41'.9 6·9	49° 35'.0 6·2	49° 28'.8 5·7	49° 23'.1						36°
69·7	69·2	68·8	68·4						
48° 32'.2 6·4	48° 25'.8 5·8	48° 20'.0 5·3	48° 14'.7						35°
70·7	70·3	69·8							
47° 21'.5 6·0	47° 15'.5 5·3	47° 10'.2							34°
									33°
									32°
									31°
138°	139°	140°	141°	142°	143°	144°	145°	146°	φ / λ

TABLE

Horizontal Forces in C.G.S. at 1895.0 at the Intersections of entire

$$H = 29401\overset{\gamma}{.}4 - 74\overset{\gamma}{.}97(\lambda - 138°)° - 362\overset{\gamma}{.}45(\varphi - 37°)° + 3\overset{\gamma}{.}497$$

φ \ λ	129°		130°		131°		132°		133°		134°		135°		136°		137°	
46°																		
45°																		
44°																		
43°																		
42°																		
41°																		
40°																		
39°																		
38°																	.29114	79
																	366	
37°															.29565	85	.29480	79
															356		357	
36°							.30327	112	.30215	105	.30110	98	.30012	91	.29921	84	.29837	77
							342		343		344		345		347		348	
35°					.30787	118	.30669	111	.30558	104	.30454	97	.30357	89	.30268	83	.30185	76
					331		333		334		336		337		338		339	
34°			.31242	124	.31118	116	.31002	110	.30892	102	.30790	96	.30694	88	.30606	82	.30524	74
			321		323		324		326		327		328		329			
33°	.31692	129	.31563	122	.31441	115	.31326	108	.31218	101	.31117	95	.31022	87	.30935			
			313		314		316		317									
32°			.31876	121	.31755	113	.31642	107	.31535									
			305		306		306											
31°			.32181	120	.32061	113	.31948											
φ \ λ	129°		130		131°		132°		133°		134°		135°		136°		137°	

X.

Degrees of Longitude and Latitude calculated by the Formula

$$\{(\lambda-138^\circ)^\circ\}^2-1.\check{3}16(\lambda-138^\circ)^\circ(\varphi-37^\circ)^\circ-4.\check{3}31\{(\varphi-37^\circ)^\circ\}^2.$$

138°		139°		140°		141°		142°		143°		144°		145°		146°	λ / φ
								.25497									46°
								442									
						.26000	61	.25939	55	.25884							45°
						431		432		435							
						.26431	60	.26371	52	.26319	46	.26273	39	.26234	32	.26202	44°
						423		424		425		426		428		430	
				.26919	65	.26854	59	.26795	51	.26744	45	.26699	37	.26662	30	.26632	43°
				413		414		416		417							
				.27332	64	.27268	57	.27211	50	.27161							42°
				404		405		406									
				.27736	63	.27673	56	.27617									41°
				395		397		398									
		.28200	69	.28131	61	.28070	55	.28015									40°
		385		387		388		390									
		.28585	67	.28518	60	.28458	53	.28405									39°
		377		378		379		380									
.29035	73	.28962	66	.28896	59	.28837	52	.28785									38°
366		368		369		371											
.29401	71	.29330	65	.29265	57	.29208											37°
359		359		361		362											
.29760	71	.29689	63	.29626	56	.29570											36°
349		351		352		353											
.30109	69	.30040	62	.29978	55	.29923											35°
341		342		344													
.30450	68	.30382	60	.30322													34°
																	33°
																	32°
																	31°
138°		139°		140°		141°		142°		143°		144°		145°		146°	φ / λ

TABLE

Total Forces in C.G.S. at 1895.0 at the Intersections of entire Degrees of Longi-

φ \ λ	129°	130°	131°	132°	133°	134°	135°	136°	137°
46°									
45°									
44°									
43°									
42°									
41°									
40°									
39°									
38°									.47408 276
									590
37°								.47098 280	.46818 256
								592	571
36°				.47769 352	.47417 326	.47091 304	.46787 281	.46506 259	.46247 238
				658	634	613	593	573	555
35°			.47462 351	.47111 328	.46783 305	.46478 284	.46194 261	.45933 241	.45692 220
			656	633	612	592	573	555	538
34°		.47157 351	.46806 328	.46478 307	.46171 285	.45886 265	.45621 243	.45378 224	.45154 204
		653	650	610	590	571	553	537	
33°	.46855 351	.46504 328	.46176 308	.45868 287	.45581 266	.45315 247	.45068 227	.44841	
		626	607	587	568				
32°		.45878 309	.45569 288	.45281 268	.45013				
		601	582	564					
31°		.45277 290	.44987 270	.44717					
φ \ λ	129°	130°	131°	132°	133°	134°	135°	136°	137°

XI.

tude and Latitude calculated from the Formulae for Horizontal Force and Dip.

138°		139°		140°		141°		142°		143°		144°		145°		146°	λ / φ
								.50599									46°
								571									
						.50363	335	.50028	306	.49722							45°
						590		565		539							
						.49773	310	.49463	280	.49183	251	.48932	224	.48708	196	.48512	44°
						582		557		534		512		491		471	
				.49504	313	.49191	285	.48906	257	.48649	229	48420	203	.48217	176	.48041	43°
				596		572		548		526							
				.48908	289	.48619	261	.48358	235	.48123							42°
				584		560		540									
				.48324	265	.48059	241	.47818									41°
				571		551		530									
		.48023	270	.47753	245	.47508	220	.47288									40°
		579		558		538		520									
		.47444	249	.47195	225	.46970	202	.46768									39°
		565		546		527		510									
.47132	253	.46879	230	.46649	206	.46443	185	.46258									38°
570		550		532		515											
.46562	233	.46329	212	.46117	189	.45928											37°
553		536		518		503											
.46009	216	.45793	194	.45599	174	.45425											36°
537		521		506		491											
.45472	200	.45272	179	.45093	159	.44934											35°
522		506		491													
.44950	184	.44766	164	.44602													34°
																	33°
																	32°
																	31°
138°		139°		140°		141°		142°		143°		144°		145°		146°	φ / λ

TABLE

Northward Forces (X) in C.G.S. at 1895.0 at the Intersections of entire Degrees of

λ / φ	129°	130°	131°	132°	133°	134°	135°	136°	137°
46°									
45°									
44°									
43°									
42°									
41°									
40°									
39°									
38°									.28982 73
									377
37°								.29440 81	.29359 72
								368	369
36°				.30204 111	.30093 103	.29990 95	.29895 87	.29808 80	.29728 71
				355	356	357	358	359	360
35°			.30677 118	.30559 110	.30449 102	.30347 94	.30253 86	.30167 79	.30088 71
			344	345	347	348	348	349	351
34°		.31146 125	.31021 117	.30904 108	.30796 101	.30695 94	.30601 85	.30516 77	.30439 70
		334	336	337	337	338	340	341	
33°	.31612 132	.31480 123	.31357 116	.31241 108	.31133 100	.31033 92	.30941 84	.30857	
		325	326	328	329				
32°		.31805 122	.31683 114	.31569 107	.31462				
		316	317	318					
31°		.32121 121	.32000 113	.31887					
φ / λ	129°	130°	131°	132°	133°	134°	135°	136°	137°

XII.

Longitude and Latitude calculated from the Formulæ for Horizontal Force and Declination.

138°		139°		140°		141°		142°		143°		144°		145°		146°	λ / φ
								.25324									46°
								451									
						.25823	48	.25775	40	.25735							45°
						442		443		443							
						.26265	47	.26218	40	.26178	32	.26146	25	.26121	18	.26103	44°
						433		434		435		435		436		437	
				.26752	54	.26698	46	.26652	39	.26613	32	.26581	24	.26557	17	.26540	43°
				424		425		426		427							
				.27176	53	.27123	45	.27078	38	.27040							42°
				416		417		417									
				.27592	52	.27540	45	.27495									41°
				407		407		408									
		.28058	59	.27999	52	.27947	44	.27903									40°
		397		397		399		399									
		.28455	59	.28396	50	.28346	44	.28302									39°
		388		389		389		391									
.28909	66	.28843	58	.28785	50	.28735	42	.28693									38°
378		380		381		381											
.29287	64	.29223	57	.29166	50	.29116											37°
370		370		371		372											
.29657	64	.29593	56	.29537	49	.29488											36°
360		362		362		363											
.30017	62	.29955	56	.29899	48	.29851											35°
352		352		353													
.30369	62	.30307	55	.30252													34°
																	33°
																	32°
																	31°
138°		139°		140°		141°		142°		143		144		145°		146°	φ / λ

TABLE

Westward Forces (Y) in C.G.S. at 1895.0 at the Intersections of entire Degrees of

φ \ λ	129°		130°		131°		132°		133°		134°		135°		136°		137°	
46°																		
45°																		
44°																		
43°																		
42°																		
41°																		
40°																		
39°																		
38°																	.02776	74
																	115	
37°															.02723	62	.02661	72
															122		120	
36°							.02736	18	.02718	29	.02689	39	.02650	49	.02601	60	.02541	70
							138		135		132		130		129		127	
35°					.02602	4	.02598	15	.02583	26	.02557	37	.02520	48	.02472	58	.02414	68
					147		144		142		139		136		134		132	
34°			.02445	10	.02455	1	.02454	13	.02441	23	.02418	34	.02384	46	.02338	56	.02282	66
			156		152		150		147		144		142		139			
33°	.02265	24	.02289	14	.02303	1	.02304	10	.02294	20	.02274	32	.02242	43	.02199			
			162		159		155		152									
32°			.02127	17	.02144	5	.02149	7	.02142									
			166		164		161											
31°			.01961	19	.01980	8	.01988											
φ \ λ	129°		130°		131°		132°		133°		134°		135°		136°		137°	

XIII.

Longitude and Latitude calculated from the Formulæ for Horizontal Force and Declination.

λ / φ	138°		139°		140°		141°		142°		143°		144°		145°		146°
46°									.02970								
									62								
45°							.03025	117	.02908	126	.02782						
							68		68		68						
44°							.02957	117	.02840	126	.02714	134	.02580	144	.02436	152	.02284
							74		74		74		74		74		74
43°					.02990	107	.02883	117	.02766	126	.02640	134	.02506	144	.02362	152	.02210
					81		81		80		79						
42°					.02909	107	.02802	116	.02686	125	.02561						
					87		86		86								
41°					.02822	106	.02716	116	.02600								
					93		93		91								
40°			.02825	96	.02729	106	.02623	114	.02509								
			100		99		97		98								
39°			.02725	95	.02630	104	.02526	115	.02411								
			107		105		104		102								
38°	.02702	84	.02618	93	.02525	103	.02422	113	.02309								
	113		111		110		109										
37°	.02589	82	.02507	92	.02415	102	.02313										
	118		117		116		115										
36°	.02471	81	.02390	91	.02299	101	.02198										
	125		123		122		121										
35°	.02346	79	.02267	90	.02177	100	.02077										
	130		129		127												
34°	.02216	78	.02138	88	.02050												
33°																	
32°																	
31°																	
φ / λ	138°		139°		140°		141°		142°		143°		144°		145°		146°

TABLE

Upward Forces (Z) in C.G.S. at 1895.0 at the Intersections of entire Degrees of Longi-

φ \ λ	129°	130°	131°	132°	133°	134°	135°	136°	137°
46°									
45°									
44°									
43°									
42°									
41°									
40°									
39°									
38°									$-.37414^{288}$
									1042
37°								$-.36662^{290}$	$-.36372^{266}$
								1060	1038
36°				$-.36907^{362}$	$-.36545^{338}$	$-.36207^{314}$	$-.35893^{291}$	$-.35602^{268}$	$-.35334^{245}$
				1146	1121	1097	1074	1053	1032
35°			$-.36123^{362}$	$-.35761^{337}$	$-.35424^{314}$	$-.35110^{291}$	$-.34819^{270}$	$-.34549^{247}$	$-.34302^{226}$
			1159	1133	1110	1088	1068	1047	1028
34°		$-.35323^{359}$	$-.34964^{336}$	$-.34628^{314}$	$-.34314^{292}$	$-.34022^{271}$	$-.33751^{249}$	$-.33502^{228}$	$-.33274^{208}$
		1170	1146	1124	1102	1080	1060	1041	
33°	$-.34510^{357}$	$-.34153^{335}$	$-.33818^{314}$	$-.33504^{292}$	$-.33212^{270}$	$-.32942^{251}$	$-.32691^{230}$	$-.32461$	
		1158	1135	1113	1092				
32°		$-.32995^{312}$	$-.32683^{292}$	$-.32391^{271}$	$-.32120$				
		1146	1125	1104					
31°		$-.31849^{291}$	$-.31558^{271}$	$-.31287$					
φ / λ	129°	130	131°	132°	133°	134°	135°	136°	137°

XIV.

tude and Latitude calculated from the Formulæ for Horizontal Force and Dip.

φ \ λ	138°	139°	140°	141°	142°	143°	144°	145°	146°
46°					.43705				
					927				
45°				.43134 (356)	.42778 (324)	.42454			
				959	931	905			
44°				.42175 (328)	.41847 (298)	.41549 (269)	.41280 (240)	.41040 (213)	.40827
				960	934	910	886	865	844
43°			.41546 (331)	.41215 (302)	.40913 (274)	.40639 (245)	.40394 (219)	.40175 (192)	.39983
			988	962	937	913			
42°			.40558 (305)	.40253 (277)	.39976 (250)	.39726			
			986	961	939				
41°			.39572 (280)	.39292 (255)	.39037				
			984	962	941				
40°		.38871 (283)	.38588 (258)	.38330 (234)	.38096				
		1005	984	963	942				
39°		.37866 (262)	.37604 (237)	.37367 (213)	.37154				
		1003	982	962	943				
38°	.37126 (263)	.36863 (241)	.36622 (217)	.36405 (194)	.36211				
	1020	1000	980	962					
37°	.36106 (243)	.35863 (221)	.35642 (199)	.35443					
	1017	998	979	961					
36°	.35089 (224)	.34865 (202)	.34663 (181)	.34482					
	1013	995	978	961					
35°	.34076 (206)	.33870 (185)	.33685 (161)	.33521					
	1010	992	975						
34°	.33066 (188)	.32878 (168)	.32710						
33°									
32°									
31°									
λ / φ	138°	139°	140°	141°	142°	143°	144°	145°	146°

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height. in km.	Year.	Latitude.	Longitude.	Declination δ. Observed	Declination δ. Calculated	Declination δ. Obs.-Cal.
1a	Tōkyō	0.02	1893–96	35° 42.0′	139° 46.0′	4° 24.5′	4° 24.3′	+ 0.2′
1b	"	0.02	1896.50	35 41.0	139 45.0	4 27.6	4 24.2	+ 3.4
2	Hatiōzi	0.11	1893.51 } 1895.48 }	35 40.0	139 20.0	4 34.5	4 28.1	+ 6.4
[3]	Saruhasi	0.31	1893.52	35 36.4	138 58.8	5 05.4	4 30.4	+ 35.0
[4]	Kōhu	0.26	1893.52	35 39.5	138 34.5	4 53.4	4 34.9	+ 18.5
5	Uminokuti	1.07	1893.53	35 59.0	138 27.3	4 16.6	4 41.6	− 25.0
6	Usuta	0.74	1893.54	36 11.0	138 28.1	4 40.7	4 45.0	− 4.3
[7]	Komoro	0.67	1893.54	36 19.7	138 26.0	4 47.8	4 47.8	0.0
8	Miyota	0.80	1893.54	36 19.5	138 30.5	4 42.6	4 47.1	− 4.5
9	Karuizawa*......	0.97	1893.55	36 21.7	138 38.3	4 43.5	4 46.6	− 3.1
[10]	Kutukake........	0.99	1893.55	36 20.8	138 33.0	...	4 47.1	...
11	Ueda	0.43	1893.56	36 24.0	138 15.6	5 04.7	4 50.5	+ 14.2
12	Kamisuwa	0.71	1893.56	36 02.3	138 07.7	4 49.5	4 45.3	+ 4.2
13	Matumoto	0.69	1893.57	36 14.0	137 59.0	4 36.3	4 49.9	− 13.6
14	Ōmati	0.69	1893.58	36 28.0	137 49.5	4 57.0	4 55.3	+ 1.7
[15]	Kuruma	0.60	1893.58	36 48.0	137 51.0	4 45.9	5 00.9	− 15.0
16	Itoigawa	0.00	1893.77	37 02.5	137 52.0	5 08.4	5 05.0	+ 3.4
17	Takata	0.00	1893.59	37 06.8	138 16.0	5 11.7	5 02.8	+ 8.9
18	Sekiyama	0.56	1893.60	36 56.5	138 13.5	5 00.6	5 00.2	+ 0.4
19	Nagano	0.38	1893.60	36 39.8	138 12.0	4 57.8	4 55.6	+ 2.2
20	Iiyama	0.31	1893.61	36 52.3	138 22.2	5 07.1	4 57.8	+ 9.3
21	Tōkamati	0.16	1893.62	37 09.0	138 44.0	5 02.1	4 59.3	+ 2.8

Bracketed number shows that the station is excluded in the equations of condition.

XV.

(δ, θ, H, and I) Reduced to 1895.0 and Sea Level.

Dip θ. Observed		Dip θ. Calculated		Dip θ. Obs.-Cal.	Horizontal Force H. Observed	Horizontal Force H. Calculated	Horizontal Force H. Obs.-Cal.	Total Force I. Observed	Total Force I. Calculated	Total Force I. Obs.-Cal.	No.
49°	04.7'	49°	00.6'	− 4.9'	29760	29747	+ 13	45433	45487	− 54	1a
49	00.0	49	08.6	− 8.6	29816	29754	+ 62	45447	45483	− 36	1b
49	02.4	49	10.0	− 7.6	29766	29786	− 20	45408	45553	− 145	2
49	46.2	49	08.0	+ 38.2	29215	29830	− 615	45234	45590	− 356	[3]
50	13.4	49	14.3	+ 59.1	28890	29830	− 940	45160	45701	− 532	[4]
49	16.2	49	37.5	− 21.3	29833	29733	+ 100	45721	45899	− 178	5
49	47.5	49	51.2	− 3.7	29945	29661	+ 284	46384	46004	+ 380	6
49	54.8	50	01.5	− 6.7	29502	29611	− 109	46791	46089	+ 702	[7]
49	57.2	50	00.7	− 3.5	29655	29607	+ 48	46090	46070	+ 20	8
49	51.1	50	02.3	− 11.2	29719	29585	+ 134	46093	46063	+ 30	9
49	30.8	50	01.9	− 31.1	29548	29597	− 49	45509	46074	− 565	[10]
50	02.5	50	07.6	− 5.1	29874	29598	+ 276	46514	46168	+ 346	11
49	43.9	49	43.6	+ 0.3	29872	29737	+ 135	46217	46001	+ 216	12
50	00.4	49	58.1	+ 2.3	29595	29678	− 83	46048	46141	− 93	13
50	16.0	50	15.4	+ 0.6	29613	29607	+ 6	46327	46307	+ 20	14
50	15.5	50	38.1	− 22.6	29765	29485	+ 280	46556	46488	+ 68	[15]
51	01.3	50	54.5	+ 6.8	29246	29396	− 150	46494	46619	− 125	16
50	54.7	50	56.3	− 1.6	29362	29340	+ 22	46568	46560	+ 8	17
50	53.0	50	44.9	+ 8.1	29340	29406	− 66	46505	46475	+ 30	18
50	33.4	50	26.1	+ 7.3	29342	29508	− 166	46185	46328	− 143	19
50	43.2	50	39.1	+ 4.1	29364	29421	− 57	46381	46403	− 22	20
50	55.2	50	55.4	− 0.2	29368	29294	+ 74	46585	46472	+ 113	21

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height. in km.	Year.	Latitude.		Longitude.		Declination δ. Observed		Calculated		Obs.-Cal.
22	Nagaoka	0.03	1893.64	37°	27′.0	138°	52′.2	5°	14′.3	5°	03′.2	+ 11′.1
[23]	Kasiwazaki......	0.00	1893.63	37	22.5	138	34.3	...		5	04.7	...
[24]	Teradomari......	0.00	1893.64	37	38.2	138	45.5	...		5	07.4	...
25	Niigata	0.00	1893.64 } 1895.62 }	37	54.8	139	02.2	5	29.5	5	09.4	+ 20.1
[26]	Kamo	0.10	1893.65	37	37.5	139	03.0	5	30.4	5	04.4	+ 26.0
27	Sibata	0.02	1893.66	37	56.0	139	19.0	5	34.7	5	07.0	+ 27.7
28	Ebisu	0.00	1893.67	38	05.2	138	25.5	5	45.5	5	18.2	+ 27.3
29	Wasizaki	0.00	1893.67	38	18.5	138	31.0	5	43.6	5	21.1	+ 22 5
30	Aikawa	0.05	1893.68	38	02.5	138	14.2	5	22.6	5	19.1	+ 3.5
31	Ogi	0.00	1893.69	37	49.0	138	15.4	5	09.6	5	15.1	− 5.5
[32]	Ozasa	0.90	1893.70	36	29.6	138	30.5	4	10.3	4	50.0	− 39.7
[33]	Wakasare	1.40	1893.70	36	24.6	138	34.2	3	47.3	4	48.0	− 60.7
[34]	Asama	2.45	1893.70	36	24.0	138	30.5	3	13.0	4	48.4	− 95.4
35	Matuida	0.26	1893.70	36	18.5	138	48.6	4	41.2	4	44.1	− 2.9
36	Takasaki	0.10	1893.71	36	19.5	139	00.5	4	54.0	4	42.6	+ 11.4
37	Numata	0.42	1893.72 } 1895.49 }	36	39.2	139	02.0	4	41.0	4	48.0	− 7.0
38	Kumagai.........	0.03	1893.72	36	09.0	139	23.2	4	19.5	4	35.9	− 16.4
39	Odawara	0.00	1893.74	35	15.0	139	09.8	4	34.6	4	22.5	+ 12.1
[40]	Atami	0.00	1893.75	35	05.7	139	05.0	4	26.7	4	20.6	+ 6.1
[41]	Simoda	0.00	1893.77	34	40.5	138	57.8	3	42.3	4	14.3	− 32.0
42	Matuzaki.........	0.00	1893.78	34	45.3	138	48.5	4	23.1	4	17.1	+ 6.0

Bracketed number shows that the station is excluded in the equations of condition.

XV. (*Continued.*)

(δ, θ, H, and I) Reduced to 1895.0 and Sea Level.

Dip θ.			Horizontal Force H.			Total Force I.			No.
Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	
51° 39′.4	51° 14′.7	+ 24′.7	29013γ	29174γ	− 161γ	46766γ	46605γ	+ 161γ	22
51 55.3	51 11.8	+ 43.5	28851	29223	− 372	46780	46635	+ 145	[23]
51 35.1	51 28.1	+ 7.0	29155	29113	+ 42	46921	46735	+ 186	[24]
51 54.6	51 44.6	+ 10.0	28899	28992	− 93	46846	46823	+ 23	25
51 58.2	51 25.2	+ 33.0	28992	29097	− 105	47059	46660	+ 399	[26]
51 41.9	51 43.9	− 2.0	28924	28965	− 41	46666	46766	− 100	27
51 51.0	52 00.8	− 9.8	29012	28971	+ 41	46967	47071	− 104	28
52 10.1	52 14.9	− 4.8	28796	28881	− 85	46949	47172	− 223	29
52 09.4	51 59.3	+ 10.1	28747	29001	− 254	46857	47093	− 236	30
51 26.0	51 44.0	− 18.0	29257	29083	+ 174	46930	46959	− 29	31
50 54.0	50 12.3	+ 41.7	29539	29547	− 8	46837	46165	+ 672	[32]
50 00.0	50 06.1	− 6.1	29870	29573	+ 297	46470	46106	+ 364	[33]
51 45.2	50 05.9	+ 99.3	30198	29580	+ 618	48781	46113	+ 2668	[34]
49 59.3	49 57.5	+ 1.8	29627	29592	+ 35	46080	45996	+ 84	35
50 07.3	49 57.3	+ 10.0	29604	29573	+ 31	46172	45965	+ 207	36
50 19.3	50 19.5	− 0.2	29443	29453	− 10	46115	46133	− 18	37
49 58.4	49 42.8	+ 15.6	29559	29611	− 52	45960	45794	+ 166	38
49 09.1	48 42.2	+ 26.9	30217	29943	+ 274	46199	45371	+ 828	39
48 57.9	48 31.9	+ 26.0	29353	30002	− 649	44710	45306	− 596	[40]
47 53.3	48 03.3	− 10.0	30186	30155	+ 31	45015	45114	− 99	[41]
48 12.0	48 09.8	+ 2.2	30149	30137	+ 12	45232	45183	+ 49	42

TALBE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height. in km.	Year.	Latitude.	Longitude.	Declination δ. Observed	Declination δ. Calculated	Declination δ. Obs.-Cal.
43	Hudisawa	0.00	1893.79	35° 20′.8	139° 29′.3	4° 33′.9	4° 21′.1	+ 12′.8
44	Ōtu	0.00	1893.81	35 15.4	139 42.5	4 17.5	4 17.3	+ 0.2
[45]	Midono	0.55	† 1893.82 * 1893.51	35 20.0	138 54.0	4 25.2	4 26.4	− 1.2
[46]	Yosida	0.84	† 1893.81 * 1893.51	35 28.0	138 48.0	3 29.9	4 29.6	− 59.7
[47]	Umagaesi	1.00	† 1893.81 * 1893.52	35 25.0	138 47.0	4 44.1	4 28.9	+ 15.2
[48]	Huzi East side Syakadake ...	3.73	1893.53	35 21.7	138 44.0	...	4 28.4	...
[49]	„ Sainokawara near Kinmeisui.	3.60	1893.53	35 21.7	138 43.8	...	4 28.3	...
[50]	„ Sainokawara near Ginmeisui.	3.72	1893.53	35 21.4	138 43.9	...	4 28.3	...
[51]	„ Bottom of Crater	3.56	1893.53	35 21.5	138 43.9	...	4 28.3	...
[52]	Murayama	0.50	* 1893.80 † 1893.53	35 15.0	138 40.0	3 05.5	4 27.0	− 81.5
[53]	Hiromibara	0.73	† 1893.80 * 1893.54	35 21.1	138 36.7	3 17.6	4 29.3	− 71.7
[54]	„ Down Uzuragoya ...	0.69	1893.54	35 21.0	138 36.3	...	4 29.3	...
[55]	„ Up Uzuragoya ...	0.78	1893.54	35 21.1	138 37.2	...	4 29.2	...
[56]	Mituike	0.82	1893.54	35 22.4	138 35.9	...	4 29.7	...
[57]	Mituike Cave ...	0.82	1893.54	35 22.4	138 35.9	...	4 29.7	...
[58]	Front of Mituike Cave.	0.82	1893.54	35 22.4	138 35.9	...	4 29.7	...
[59]	Front of Hitoana	0.69	1893.55	35 21.5	138 35.5	...	4 29.5	...
[60]	Itimaiiwa in Hitoana	0.69	1893.55	35 21.5	138 35.5	...	4 29.5	...
[61]	Front of Hitoana	0.69	1893.55	35 21.5	138 35.5	...	4 29.5	...
[62]	Ōmiya	0.11	† 1893.79 * 1893.55	35 13.5	138 38.0	4 22.6	4 26.9	− 4.3
63	Numazu	0.00	† 1893.82 * 1893.55	35 05.0	138 52.5	4 25.6	4 22.2	+ 3.4

† Epoch for the observation of δ. * Epoch for the observations of θ and H.

XV. *(Continued.)*

(δ, θ, H, and I) Reduced to 1895.0 and Sea Level.

Dip θ.			Horizontal Force H.			Total Force I.			No.
Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	
			γ	γ	γ	γ	γ	γ	
49° 02.′6	48° 46.′9	+ 15.′7	29623	29888	− 265	45192	45359	− 167	43
48 36.3	48 39.4	− 3.1	29832	29906	− 74	45114	45273	− 159	44
49 50.1	48 49.6	+ 60.5	29218	29931	− 713	45299	45464	− 165	[45]
49 14.1	48 59.5	+ 14.6	29698	29891	− 193	45483	45554	− 71	[46]
50 25.3	48 56.1	+ 89.2	28835	29909	−1074	45258	45529	− 271	[47]
59 18.8	48 52.6	+626.2	26215	29929	−3714	51368	45507	+5861	[48]
52 41.9	48 52.7	+229.2	29328	29932	− 604	48395	45512	+2883	[49]
59 14.5	48 52.3	+622.2	24647	29934	−5287	48193	45510	+2683	[50]
47 42.4	48 52.4	− 70.0	31221	29933	+1288	46396	45510	+ 886	[51]
48 55.8	48 45.3	+ 10.5	30595	29976	+ 619	46569	45467	+1102	[52]
49 15.2	48 52.7	+ 22.5	29768	29944	− 176	45594	45531	+ 63	[53]
48 50.4	48 52.7	− 2.3	29700	29945	− 245	45124	45532	− 408	[54]
49 39.9	48 52.7	+ 47.2	29937	29943	− 6	46252	45529	+ 723	[55]
40 04.5	48 54.3	−529.8	34010	29937	+4073	44446	45545	−1099	[56]
48 18.1	48 54.3	− 36.2	29860	29937	− 77	44888	45545	− 657	[57]
47 39.8	48 54.3	− 74.5	29109	29937	− 828	43221	45545	−2324	[58]
46 20.8	48 53.3	−152.5	29386	29943	− 557	42565	45539	−2974	[59]
46 38.7	48 53.3	−134.6	26126	29943	−3817	38056	45539	−7483	[60]
42 14.9	48 53.3	−398.4	31593	29943	+1650	42680	45539	−2859	[61]
48 35.1	48 43.8	− 8.7	30275	29986	+ 289	45767	45460	+ 307	[62]
48 23.0	48 32.4	− 9.4	30108	30019	+ 89	45337	45340	− 3	63

Bracketed number shows that the station is excluded in the equations of condition.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.		Longitude.		Declination δ. Observed		Declination δ. Calculated		Declination δ. Obs.-Cal.
				°	′	°	′	°	′	°	′	′
64	Simizu	0.00	† 1893.79 * 1893.56	35	00.5	138	30.0	4	11.4	4	24.2	− 12.8
65	Nisinoto	0.14	† 1893.78 * 1893.56	35	02.0	137	50.0	4	24.0	4	30.0	− 6.0
66	Okazaki	0.05	† 1893.77 * 1893.57	34	56.5	137	08.0	4	31.8	4	33.3	− 1.5
67	Kōwa	0.00	† 1893.74 * 1893.58	34	46.0	136	55.5	4	35.4	4	31.6	+ 3.8
68	Narumi	0.00	† 1893.75 * 1893.58	35	05.0	136	58.0	4	39.7	4	37.0	+ 2.7
69	Nagoya	0.00	† 1893.71 * 1893.58 1896.76	35	10.5	136	56.0	4	42.3	4	38.8	+ 3.5
70	Maegasu	0.00	† 1893.71 * 1893.59	35	05.0	136	44.0	4	40.6	4	38.8	+ 1.8
71	Yokkaiti	0.00	† 1893.72 * 1893.59	34	58.5	136	37.5	4	36.7	4	37.2	− 0.5
72	Kameyama	0.09	† 1893.72 * 1893.59 1896.68	34	52.0	136	28.0	4	33.4	4	36.2	− 2.8
73	Tu	0.00	† 1893.73 * 1893.60	34	43.0	136	31.0	4	28.3	4	33.1	− 4.8
74	Kamiyasiro......	0.00	† 1893.73 * 1893.60	34	30.0	136	45.0	4	28.7	4	27.9	+ 0.8
75	Toba	0.05	† 1893.73 * 1893.61	34	29.0	136	50.0	4	26.8	4	27.0	− 0.2
76	Katikawa	0.00	† 1893.76 * 1893.61	35	13.0	136	58.0	4	44.5	4	39.4	+ 5.1
77	Kiyosu	0.00	† 1893.75 * 1893.61	35	12.0	136	51.0	4	40.9	4	39.8	+ 1.1
78	Gihu	0.15	† 1893.68 * 1893.62	35	25.5	136	46.0	4	44.7	4	44.4	+ 0.3
79	Nakatugawa	0.30	† 1893.77 * 1893.63	35	29.0	137	32.0	4	43.4	4	40.2	+ 3.2
80	Iida	0.53	† 1893.78 * 1893.64	35	31.0	137	50.0	4	34.2	4	38.5	− 4.3
81	Matuō	0.53	1893.64	35	29.0	137	52.0	4	37.7	4	37.7	0.0
[82]	Hukusima	0.78	1893.65	35	50.0	137	42.0	4	57.5	4	45.1	+ 12.4
83	Nomugi	1.16	1893.65	36	02.0	137	35.0	4	56.6	4	49.5	+ 7.1
84	Takayama	0.56	1893.66	36	08.0	137	16.5	4	51.8	4	53.6	− 1.8

† Epoch for the observation of δ. * Epoch for the observations of θ and H.

XV. (*Continued.*)

(δ, θ, H, and I) Reduced to 1895.0 and Sea Level.

Dip θ.			Horizontal Force H.			Total Force I.			No.
Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	
48° 33.1	48° 29.5	+ 3.6	30153	30071	+ 82	45552	45375	+ 177	64
48 38.3	48 35.6	+ 2.7	30049	30110	− 61	45473	45524	− 51	65
48 32.8	48 34.1	− 1.3	30110	30194	− 84	45482	45629	− 147	66
48 23.5	48 23.2	+ 0.3	30255	30271	− 16	45563	45583	− 20	67
48 45.6	48 45.3	+ 0.3	30133	30159	− 26	45710	45746	− 36	68
48 47.3	48 52.0	− 4.7	30186	30130	+ 56	45817	45804	+ 13	69
48 48.5	48 48.2	+ 0.3	30173	30172	+ 1	45815	45809	+ 6	70
48 38.7	48 40.2	− 1.5	30206	30224	− 18	45716	45767	− 51	71
48 33.3	48 33.7	− 0.4	30198	30274	− 76	45623	45744	− 121	72
48 34.5	48 22.7	+ 11.8	30205	30321	− 116	45652	45650	+ 2	73
48 09.0	48 05.6	+ 3.4	30345	30376	− 31	45483	45478	+ 5	74
47 57.2	48 03.7	− 6.5	30413	30374	+ 39	45411	45448	− 37	75
48 53.7	48 54.7	− 1.0	30094	30113	− 19	45774	45818	− 44	76
48 55.4	48 54.4	+ 1.0	30084	30128	− 44	45786	45837	− 51	77
49 07.7	49 10.9	− 3.2	30064	30057	+ 7	45944	45982	− 38	78
49 07.6	49 09.3	− 1.7	29903	29976	− 73	45696	45833	− 137	79
49 06.1	49 09.5	− 3.4	29860	29942	− 82	45607	45785	− 178	80
49 10.8	49 06.9	+ 3.9	29841	29951	− 110	45650	45758	− 108	81
50 22.3	49 32.5	+ 49.9	29614	29841	− 227	46430	45988	+ 442	[82]
49 37.5	49 47.2	− 9.7	29942	29779	+ 163	46222	46123	+ 99	83
49 46.2	49 56.5	− 10.3	29819	29768	+ 51	46169	46255	− 86	84

Bracketed number shows that the station is excluded in the equations of condition.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.		Longitude.		Declination δ. Observed		Calculated		Obs.-Cal.
				°	′	°	′	°	′	°	′	′
85	Gero	0.58	1893.67	35	48.0	137	16.0	4	47.0	4	47.7	− 0.7
86	Hatiman	0.21	1893.67	35	44.0	136	57.0	4	49.7	4	48.7	+ 1.0
87	Nagamine	0.37	1893.68	35	40.5	136	35.0	4	56.1	4	50.0	+ 6.1
88	Nagahama	0.05	1893.69 } 1896.54 }	35	22.5	136	15.0	4	47.8	4	46.5	+ 1.3
89	Turuga	0.00	1893.69	35	39.0	136	02.0	4	48.6	4	52.7	− 4.1
90	Takehu	0.04	1893.70	35	53.0	136	11.0	4	52.9	4	56.1	− 3.2
91	Ōno	0.20	1893.70	35	59.0	136	30.0	4	50.9	4	56.0	− 5.1
92	Sioya	0.00	1893.71	36	16.5	136	17.0	5	03.6	5	02.5	+ 1.1
93	Kanazawa	0.00	1893.72	36	33.7	136	40.0	5	04.3	5	05.3	− 1.0
94	Nanao	0.00	1893.72	37	03.5	137	00.0	5	11.1	5	11.8	− 0.7
95	Wazima	0.00	1893.73	37	22.5	136	55.0	5	15.4	5	17.9	− 2.5
96	Toyama	0.01	1893.74	36	40.0	137	13.7	5	06.5	5	03.3	+ 3.2
97	Mozumi	0.40	1893.75	36	28.0	137	14.0	4	56.6	4	59.7	− 3.1
98	Mikkaiti	0.00	1893.76	36	51.0	137	28.0	5	10.0	5	04.7	+ 5.3
99	Abuta	0.00	1894.50	42	33.1	140	45.3	6	11.1	6	05.9	+ 5.2
100	Osyamanbe	0.00	1894.51	42	30.7	140	22.4	5	51.6	6	10.2	− 18.6
101	Suttu	0.00	1894.52	42	47.3	140	13.4	6	02.3	6	16.5	− 14.2
102	Iwanai	0.00	1894.52	42	58.8	140	30.8	6	25.4	6	15.9	+ 9.5
[103]	Yobetu	0.10	1894.53	43	19.7	140	22.8	6	00.4	6	23.1	− 22.7
[104]	Hunama	0.00	1894.53	43	19.5	140	33.4	4	49.0	6	20.8	− 91.8
[105]	Otaru	0.00	1894.54	43	12.0	141	00.5	6	14.0	6	12.8	+ 1.2

Bracketed number shows that the station is excluded in the equations of condition.

XV. (*Continued.*)

(δ, θ, H, and I) Reduced to 1895.0 and Sea Level.

Dip θ. Observed	Dip θ. Calculated	Dip θ. Obs.-Cal.	Horizontal Force H. Observed	Horizontal Force H. Calculated	Horizontal Force H. Obs.-Cal.	Total Force I. Observed	Total Force I. Calculated	Total Force I. Obs.-Cal.	No.
49° 30'.4	49° 33'.4	− 3'.0	29903 γ	29886 γ	+ 17 γ	46051 γ	46092 γ	− 41 γ	85
49 22.4	49 31.1	− 8.7	30008	29934	+ 74	46087	46109	− 22	86
49 28.1	49 29.8	− 1.7	29950	29985	− 35	46087	46167	− 80	87
49 07.8	49 11.4	− 3.6	30102	30117	− 15	46003	46082	− 79	88
49 25.0	49 32.5	− 7.5	30149	30040	+ 109	46344	46295	+ 49	89
49 27.9	49 47.7	− 19.8	30339	29946	+ 393	46681	46390	+ 291	90
49 56.4	49 52.1	+ 4.3	29895	29884	+ 11	46450	46365	+ 85	91
50 17.2	50 14.2	+ 3.0	29704	29799	− 95	46489	46590	− 101	92
50 45.8	50 31.0	+ 14.8	29617	29665	− 48	46823	46653	+ 170	93
51 09.0	51 02.5	+ 6.5	29528	29459	+ 69	47073	46853	+ 220	94
51 32.2	51 24.9	+ 7.3	29205	29351	− 146	46953	47061	− 108	65
50 48.0	50 33.7	+ 14.3	29337	29581	− 244	46417	46565	− 148	96
50 00.9	50 19.9	− 19.0	29789	29652	+ 137	46358	46450	− 92	97
50 40.0	50 44.4	− 4.4	29485	29497	− 12	46519	46610	− 91	98
56 44.6	56 29.3	+ 15.3	26687	27056	− 369	48666	49005	− 339	99
56 17.6	56 30.1	− 12.5	27243	27097	+ 146	49092	49096	− 4	100
56 43.2	56 48.5	− 5.3	26991	26992	− 1	49188	49307	− 119	101
56 52.3	56 57.8	− 5.5	26790	26893	− 103	49020	49330	− 310	102
56 57.8	57 20.3	− 22.5	27032	26756	+ 276	49584	49578	+ 6	[103]
57 32.0	57 18.5	+ 13.5	26683	26746	− 63	49707	49519	+ 188	[104]
57 10.3	57 06.9	+ 3.4	26762	26769	− 7	49365	49303	+ 62	[105]

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	Declination δ.		
						Observed	Calculated	Obs.-Cal.
106	Otaru Myōkenzan ...	0.04	1894.62	43° 11′.9	141° 00′.6	6° 17′.7	6° 12′.7	+ 5′.0
107	Sapporo	0.00	1894.55	43 04.8	141 21.0	6 10.6	6 06.1	+ 4.5
[108]	Iwamizawa......	0.00	1894.56	43 12.9	141 45.0	5 27.3	6 02.5	− 35.2
109	Soratipt..........	0.00	1894.56	43 34.0	141 54.7	5 50.1	6 05.6	− 15.5
110	Tip-Yabusi......	0.21	1894.57	43 26.5	142 17.2	5 33.2	5 58.0	− 24.8
111	Asahikawa......	0.00	1894.58	43 46.5	142 20.2	6 20.1	6 02.3	+ 17.8
[112]	Ohotukawa......	0.10	1894.59	43 43.2	141 57.0	...	6 07.3	...
[113]	Porokamnikotan	0.70	1894.60	44 00.0	142 06.0	6 12.0	6 09.4	+ 2.6
114	Masike...........	0.00	1894.64	43 51.3	141 31.8	6 09.1	6 15.6	− 6.5
115	Sirasitomari	0.00	1894.64	44 18.7	141 39.0	6 27.8	6 20.9	+ 6.9
116	Hūren	0.00	1894.65	44 34.6	141 46.7	6 13.9	6 23.1	− 9.2
117	Tesio.............	0.00	1894.66	44 53.3	141 44.1	6 24.8	6 28.5	− 3.7
[118]	Pōsinai-pitari...	0.00	1894.67	44 50.2	142 03.7	5 29.1	6 22.8	− 53.7
[119]	Okurumatoma-nai..............	0.04	1894.68	44 36.0	142 17.8	7 05.3	6 15.5	+ 49.8
[120]	Nayoropt.........	0.08	1894.69	44 23.4	142 27.2	6 51.3	6 09.8	+ 41.5
[121]	Nuppamamoi...	0.01	1894.70	44 54.3	141 59.0	...	6 25.0	...
[122]	Wakasakanai...	0.00	1894.70	45 06.7	141 37.0	...	6 33.7	...
123	Wakkanai	0.00	1894.71	45 24.0	141 39.0	6 49.8	6 37.6	+ 12.2
124	Sōya	0.00	1894.71	45 29.4	141 52.7	6 39.4	6 35.5	+ 3.9
[125]	Sarubutu.........	0.00	1894.72	45 16.7	142 14.0	7 16.7	6 26.8	+ 49.9
[126]	Esasi...............	0.00	1894.73	44 57.0	142 34.9	7 03.0	6 16.3	+ 46.7

Bracketed number shows that the station is excluded in the equations of condition.

XV. *(Continued.)*

(θ, θ, H. and I) Reduced to 1895.0 and Sea Level.

Dip θ.			Horizontal Force H.			Total Force I.			No.
Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	
57° 00.4′	57° 06.8′	− 6.4′	26921γ	26770γ	+ 151γ	49438γ	49303γ	+ 135γ	106
57 08.8	56 56.8	+ 12.0	26496	26799	− 303	48841	49135	− 294	107
57 14.7	57 01.7	+ 13.0	26482	26719	− 237	48945	49095	− 150	[108]
57 22.2	57 21.6	+ 0.6	26577	26561	+ 16	49289	49245	+ 44	109
57 15.9	57 11.1	+ 4.8	26545	26593	− 48	49089	49071	+ 18	110
57 30.7	57 30.7	0.0	26416	26449	− 33	49180	49241	− 61	111
57 35.0	57 30.5	+ 4.5	26595	26494	+ 101	49611	49320	+ 291	[112]
58 04.8	57 46.1	+ 18.7	26439	26366	+ 73	50005	49434	+ 571	[113]
57 34.9	57 42.2	− 7.3	26519	26460	+ 59	49463	49522	− 59	114
58 15.8	58 08.5	+ 7.3	26245	26258	− 13	49895	49747	+ 148	115
58 25.5	58 23.1	+ 2.4	26136	26136	0	49915	49859	+ 56	116
58 49.2	58 41.9	+ 7.3	25923	26003	− 80	50071	50050	+ 21	117
58 43.4	58 36.0	+ 7.4	26097	26006	+ 91	50267	49914	+ 353	[118]
58 22.8	58 20.1	+ 2.7	26126	26096	+ 30	49832	49711	+ 121	[119]
58 12.0	58 06.4	+ 5.6	26206	26179	+ 27	49729	49550	+ 179	[120]
58 58.4	58 40.7	+ 17.7	25786	25981	− 195	50027	49979	+ 48	[121]
58 59.7	58 56.1	+ 3.6	25779	25912	− 133	50045	50217	− 172	[122]
59 16.1	59 12.7	+ 3.4	25783	25784	− 1	50453	50373	+ 80	123
59 13.4	59 15.9	− 2.5	25759	25730	+ 29	50341	50345	− 4	124
59 00.3	59 00.4	− 0.1	25754	25803	− 49	50012	50108	− 96	[125]
59 38.7	58 38.3	+ 0.4	25182	25928	− 746	49830	49820	+ 10	[126]

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.		Longitude.		Declination δ. Observed		Calculated		Obs.-Cal.
127	Poronai	0.00	1894.73	44°	40.0′	142°	52.9′	6°	10.6′	6°	07.2′	+ 3.4′
128	Monbetu	0.00	1894.74	44	21.7	143	21.0	6	00.4	5	54.7	+ 5.7
[129]	Yūbetu	0.00	1894.74	44	14.0	143	37.1	...		5	48.2	...
130	Nogami	0.10	1894.75	44	02.0	143	30.0	5	57.6	5	47.3	+ 10.3
131	Ainonai.........	0.20	1894.75	43	48.7	143	48.2	5	48.5	5	38.7	+ 9.8
[132]	Abasiri.........	0.00	1894.76	44	01.2	144	16.6	4	43.1	5	33.4	− 50.3
133	Syari.........	0.00	1894.76	43	54.9	144	39.6	5	35.7	5	24.9	+ 10.8
134	Rausu	0.00	1894.78	44	01.4	145	12.0	4	55.9	5	16.2	− 20.3
135	Sibetu	0.00	1894.79	43	39.1	145	08.5	5	04.6	5	11.9	− 7.3
136	Hakodate	0.00	1894.50	41	46.5	140	43.5	5	46.0	5	53.9	− 7.9
137	Mori	0.00	1894.51	42	07.0	140	34.5	5	40.5	6	01.3	− 20.8
138	Setana	0.00	1894.53	42	26.9	139	51.0	6	05.4	6	15.6	− 10.2
139	Kutō.........	0.00	1894.54	42	13.6	139	49.5	6	26.0	6	12.3	+ 13.7
140	Esasi	0.00	1894.55	41	52.5	140	09.0	6	07.5	6	02.7	+ 4.8
141	Hukuyama	0.00	1894.55	41	26.0	140	09.0	5	49.0	5	55.6	− 6.6
142	Siriuti	0.00	1894.56	41	36.3	140	25.5	5	31.7	5	55.0	− 23.3
143	Tiribetu	0.00	1894.58	42	20.8	141	00.0	6	08.4	5	59.4	+ 9.0
[144]	Tomakomai	0.00	1894.58	42	36.5	141	36.0	5	06.2	5	55.2	− 49.0
145	Sarupt	0.00	1894.59	42	30.4	142	01.5	6	01.1	5	47.4	+ 13.7
146	Osyatinai.........	0.10	1894.60	42	41.2	142	13.5	5	50.9	5	47.3	+ 3.6
[147]	Nohuka	0.00	1894.61	42	19.4	142	48.0	6	09.1	5	32.7	+ 36.4

Bracketed number shows that the station is excluded in the equations of condition.

XV. *(Continued.)*

(δ, θ, H, and I) Reduced to 1895.0 and Sea Level.

Dip θ.			Horizontal Force H.			Total Force I.			No.
Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	
58° 13′.6	58° 19′.2	− 5′.6	26185$^{\gamma}$	26036$^{\gamma}$	+ 149$^{\gamma}$	49728$^{\gamma}$	49576$^{\gamma}$	+ 152$^{\gamma}$	127
57 53.0	57 57.6	− 4.6	26232	26146	+ 86	49341	49286	+ 55	128
57 42.6	57 47.0	− 4.4	26289	26189	+ 100	49211	49124	+ 87	[129]
57 29.9	57 37.1	− 7.2	26384	26280	+ 104	49102	49070	+ 32	130
57 12.3	57 20.8	− 8.5	26396	26362	+ 34	48734	48857	− 123	131
57 10.9	57 30.8	− 19.9	26684	26253	+ 431	49235	48879	+ 356	[132]
57 30.4	57 22.0	+ 8.4	26223	26283	− 60	48815	48739	+ 76	133
57 17.7	57 24.8	− 7.1	26383	26217	+ 166	48828	48678	+ 150	134
57 16.7	57 03.4	+ 13.3	26180	26379	− 199	48432	48509	− 77	135
55 31.5	55 41.4	− 9.9	27456	27376	+ 80	48505	48568	− 63	136
56 14.2	56 03.9	+ 10.3	27181	27246	− 65	48908	48806	+ 102	137
56 12.2	56 30.7	− 18.5	27396	27158	+ 238	49250	49220	+ 30	138
56 04.6	56 17.2	− 12.6	27306	27251	+ 55	48952	49098	− 146	139
55 55.3	55 52.4	+ 2.9	27272	27373	− 101	48672	48791	− 119	140
55 05.9	55 24.6	− 18.7	27767	27552	+ 215	48529	48532	− 3	141
55 34.9	55 33.2	+ 1.7	27459	27465	− 6	48580	48556	+ 24	142
56 30.8	56 14.7	+ 16.1	26818	27125	− 307	48606	48817	− 211	143
56 47.9	56 25.9	+ 22.0	26927	26981	− 54	49175	48797	+ 378	[144]
56 26.0	56 16.4	+ 9.6	26986	27000	− 14	48808	48628	+ 180	145
56 33.2	56 25.9	+ 7.3	26932	26914	+ 18	48864	48675	+ 189	146
55 56.3	55 59.5	− 3.2	27099	27036	+ 63	48384	48338	+ 46	[147]

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.		Longitude.		Declination δ. Observed		Declination δ. Calculated		Declination δ. Obs.-Cal.
[148]	Urakawa	0.00	1894.62	42°	08′.8	142°	48′.0	6°	05′.4	5°	30′.0	+ 35′.4
149	Syoya	0.00	1894.63	42	01.5	143	16.5	5	36.2	5	20.5	+ 15.7
150	Moyoro	0.00	1894.65	42	16.4	143	18.0	5	18.6	5	23.9	− 5.3
151	Tyūrui	0.00	1894.65	42	33.2	143	18.0	5	21.7	5	28.2	− 6.5
152	Memuro	0.08	1894.66	42	55.0	143	00.0	5	48.1	5	38.7	+ 9.4
153	Otasoi	0.27	1894.67	43	04.0	142	49.5	6	05.3	5	43.8	+ 21.5
154	Syerusam	0.05	1894.69	42	54.3	143	22.5	5	26.8	5	32.3	− 5.5
155	Asyoro	0.23	1894.70	43	17.5	143	37.5	5	42.0	5	34.0	+ 8.0
[156]	Ōtu	0.00	1894.71	42	40.5	143	39.0	5	59.0	5	24.2	+ 34.8
157	Siranuka	0.00	1894.72	42	56.3	144	06.0	5	04.7	5	20.4	− 15.7
[158]	Sibetya	0.05	1894.73	43	17.7	144	35.5	5	42.6	5	16.9	+ 25.7
[159]	Atusanupuri	0.46	1894.74	43	37.2	144	25.5	5	17.1	5	24.8	− 7.7
[160]	Sinryū	0.00	1894.75	43	03.0	144	50.5	5	34.6	5	08.7	+ 25.9
[161]	Nemuro	0.03	1894.76	43	20.4	145	36.0	4	04.9	4	58.5	− 53.6
162	Sendai	0.03	1894.40 1894.82 1895.49 1895.69	38	15.8	140	52.0	5	06.2	4	55.1	+ 11.1
163	Kogota	0.03	1895.49	38	31.5	141	04.0	5	14.5	4	56.9	+ 17.6
164	Gamon	0.01	1895.50	38	44.0	141	06.0	5	13.3	4	59.9	+ 13.4
165	Midzusawa	0.02	1895.51	39	07.6	141	05.5	5	12.3	5	06.4	+ 5.9
166	Hanamaki	0.06	1895.51	39	25.0	141	06.5	5	29.4	5	10.4	+ 19.0
167	Morioka	0.13	1895.51	39	42.5	141	07.5	5	32.5	5	15.4	+ 17.1
[168]	Nakayama	0.43	1895.52	40	03.3	141	16.5	5	48.5	5	19.1	+ 29.4

Bracketed number shows that the station is excluded in the equations of condition.

XV. (*Continued.*)

(θ, θ, H, and I) Reduced to 1895.0 and Sea Level.

Dip θ.			Horizontal Force H.			Total Force I.			No.
Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	
55° 50.9′	55° 48.7′	+ 2.2′	27192	27109	+ 83	48437	48244	+ 193	[148]
55 39.1	55 38.0	+ 1.1	27138	27138	0	48098	48076	+ 22	149
55 53.4	55 53.0	+ 0.4	27112	27034	+ 78	48347	48199	+ 148	150
56 12.7	56 10.0	+ 2.7	26959	26917	+ 42	48475	48345	+ 130	151
56 33.6	56 34.1	− 0.5	26809	26779	+ 30	48649	48605	+ 44	152
56 40.6	56 44.4	− 3.8	26767	26724	+ 43	48724	48727	− 3	153
56 27.4	56 30.7	− 3.3	26737	26766	− 29	48387	48509	− 122	154
56 42.3	56 52.2	− 9.9	26628	26592	+ 36	48508	48655	− 147	155
56 16.7	56 15.0	+ 1.7	27044	26851	+ 193	48714	48330	+ 384	[156]
56 40.0	56 27.8	+ 12.2	26670	26721	− 51	48534	48366	+ 168	157
56 38.8	56 45.9	− 7.1	26483	26551	− 68	48166	48444	− 278	[158]
56 47.4	57 06.2	− 18.8	26566	26419	+ 147	48504	48643	− 139	[159]
57 17.2	56 29.7	+ 47.5	26598	26646	− 48	49216	48270	+ 946	[160]
57 29.8	56 42.3	+ 47.5	25584	26498	− 914	47611	48270	− 659	[161]
51 57.3	51 55.2	+ 2.1	28619	28746	− 127	46438	46608	− 170	162
52 09.2	52 11.1	− 1.9	28826	28635	+ 191	46982	46705	+ 277	163
52 42.8	52 24.5	+ 18.3	28179	28554	− 375	46516	46808	− 292	164
52 42.4	52 50.1	− 7.7	28393	28404	− 11	46861	47019	− 158	165
53 00.3	53 08.8	− 8.5	28194	28291	− 97	46854	47170	− 316	166
53 11.8	53 27.4	− 15.6	28267	28177	+ 90	47186	47323	− 137	167
53 33.0	53 48.6	− 15.6	28081	28032	+ 49	47265	47474	− 209	[168]

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	Declination δ. Observed	Declination δ. Calculated	Declination δ. Obs.-Cal.
[169]	Hatinohe.........	0.04	1895.60	40° 31′.0	141° 31′.3	° ′ ...	5° 23′.2	′ ...
170	Kominatotaira.. (in Sameura)	0.00	1895.53	40 32.3	141 34.3	4 53.7	5 22.8	− 29.1
[171]	Ono	0.20	1895.53	40 15.2	141 37.8	4 19.7	5 17.5	− 57.8
172	Kuzi in Rikutyū	0.00	1895.54	40 11.6	141 47.8	5 02.6	5 14.2	− 11.6
[173]	Akka	0.10	1895.54	39 59.3	141 44.0	...	5 11.8	...
174	Anazawa...	0.35	1895.55	39 52.5	141 41.3	4 40.2	5 10.6	− 30.4
[175]	Iwaizumi	0.08	1895.55	39 51.6	141 47.6	...	5 08.9	...
[176]	Miyako	0.00	1895.55	39 38.2	141 58.3	5 37.0	5 02.8	+ 34.2
[177]	Oguni, Rikutyū.	0.10	1895.56	39 31.3	141 41.0	...	5 05.0	...
178	Tōno	0.27	1895.56	39 18.2	141 31.2	5 20.7	5 03.7	+ 17.0
179	Kamaisi	0.00	1895.57	39 16.1	141 54.2	4 28.3	4 57.9	− 29.6
180	Kesennuma	0.00	1895.58	38 53.5	141 35.3	4 57.8	4 56.1	+ 1.7
181	Isinomaki	0.00	1895.59	38 25.2	141 18.0	4 58.2	4 52.2	+ 6.0
[182]	Ikusazawa	0.40	1895.60	38 51.1	140 37.7	...	5 07.7	...
183	Simoinnai	0.18	1895.61	39 02.3	140 25.8	5 23.6	5 13.1	+ 10.5
184	Yokote	0.06	1895.61	39 19.0	140 31.5	5 24.5	5 16.6	+ 7.9
[185]	Kakudate	0.04	1895.61	39 36.6	140 33.0	4 37.4	5 21.1	− 43.7
[186]	Kariwano	0.03	1895.62	39 32.2	140 21.6	...	5 22.2	...
187	Akita	0.00	1895.62	39 42.6	140 07.5	5 21.9	5 27.8	− 5.9
188	Honzyō	0.00	1895.62	39 22.0	140 01.5	5 13.7	5 23.3	− 9.6
189	Nōsiro	0.00	1895.63	40 11.5	140 02.5	5 48.9	5 35.7	+ 13.2

Bracketed number shows that the station is excluded in the equations of condition.

XV. (*Continued.*)

(δ, θ, H, and I) Reduced to 1895.0 and Sea Level.

Dip θ. Observed	Dip θ. Calculated	Dip θ. Obs.-Cal.	Horizontal Force H. Observed	Horizontal Force H. Calculated	Horizontal Force H. Obs.-Cal.	Total Force I. Observed	Total Force I. Calculated	Total Force I. Obs.-Cal.	No.
54° 10′.6	54° 16′.2	− 5′.6	27773 γ	27836 γ	− 63 γ	47452 γ	47667 γ	− 215 γ	[169]
54 19.0	54 17.2	+ 1.8	27674	27825	− 151	47443	47668	− 225	170
53 57.6	53 58.8	− 1.2	28124	27935	+ 189	47801	47503	+ 298	[171]
54 01.6	53 53.8	+ 7.8	28035	27950	+ 85	47727	47434	+ 293	172
53 33.5	53 41.2	− 7.7	28130	28034	+ 96	47357	47339	+ 18	[173]
53 24.3	53 34.3	− 10.0	28156	28081	+ 75	47220	47289	− 69	174
...	53 32.6	...	28386	28081	+ 305	...	47258	...	[175]
53 24.4	53 17.2	+ 7.2	28176	28159	+ 17	47264	47103	+ 161	[176]
53 00.9	53 11.7	− 10.8	28130	28219	− 89	46758	47103	− 345	[177]
53 09.1	52 58.7	+ 10.4	28225	28312	− 87	47065	47021	+ 44	178
52 46.2	52 54.0	− 7.8	28334	28306	+ 28	46832	46926	− 94	179
52 21.6	52 31.6	− 10.0	28409	28467	− 58	46520	46791	− 271	180
51 46.6	52 02.7	− 16.1	28741	28662	+ 79	46441	46602	− 161	181
53 10.9	52 35.3	+ 35.6	28265	28536	− 271	47165	46970	+ 195	[182]
52 57.3	52 48.9	+ 8.4	28185	28477	− 292	46784	47116	− 332	183
53 01.5	53 07.6	− 6.1	28423	28364	+ 59	47255	47269	− 14	184
53 20.3	53 25.1	− 4.8	28237	28249	− 12	47291	47400	− 109	[185]
53 22.0	53 21.8	+ 0.2	28345	28289	+ 56	47504	47406	+ 98	[186]
53 33.7	53 34.8	− 1.1	28298	28236	+ 62	47646	47560	+ 86	187
53 18.1	53 13.2	+ 4.9	28268	28376	− 108	47303	47212	+ 91	188
54 16.2	54 06.4	+ 9.8	27932	28053	− 121	47831	47850	− 19	189

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.		Longitude.		Declination δ.				
								Observed		Calculated		Obs.-Cal.
190	Ōdate	0.08	1895.64	40°	16.0	140°	32.5	5°	35.7	5°	31.9	+ 3.8
191	Hirosaki	0.06	1895.64	40	36.4	140	28.5	5	27.2	5	38.2	− 11.0
192	Adigasawa	0.00	1895.64	40	36.8	140	13.3	5	32.9	5	44.2	− 11.3
193	Ippongi	0.00	1895.65	41	10.2	140	31.3	5	39.9	5	46.8	− 6.9
[194]	Ōma	0.00	1895.66	41	30.0	140	54.5	6	20.6	5	47.1	+ 33.5
[195]	Tanabu	0.00	1895.66	41	16.1	141	14.0	6	12.3	5	39.1	+ 33.2
196	Makado	0.10	1895.67	40	52.7	141	09.0	5	51.6	5	34.0	+ 17.6
197	Aomori	0.00	1895.67	40	49.4	140	43.5	5	28.3	5	38.6	− 10.3
198	Hukaya	0.04	1895.49	36	11.8	139	16.5	4	34.6	4	37.8	− 3.2
199	Sakura	0.03	1895.50	35	43.3	140	13.5	4	21.2	4	19.9	+ 1.3
200	Sawara	0.01	1895.51	35	52.5	140	30.0	4	24.1	4	19.4	+ 4.7
201	Tyōsi	0.00	1895.51	35	44.0	140	51.0	4	13.4	4	13.0	+ 0.4
202	Itinomiya	0.00	1895.52	35	22.4	140	22.5	4	14.7	4	12.3	+ 2.4
203	Maebara	0.00	1895.53	35	05.8	140	06.0	4	11.1	4	10.5	+ 0.6
204	Kisaratu	0.00	1895.53	35	23.2	139	55.5	4	18.3	4	17.4	+ 0.9
205	Mito	0.01	1895.55	36	21.9	140	30.0	4	22.2	4	27.7	− 5.5
206	Ueda	0.00	1895.56	36	53.5	140	48.0	4	29.7	4	33.1	− 3.4
207	Namie	0.00	1895.56	37	28.3	141	00.0	4	21.5	4	40.3	− 18.8
[208]	Watari	0.02	1895.57	38	02.2	140	49.5	4	18.8	4	51.8	− 33.0
209	Hukusima	0.07	1895.57	37	45.0	140	28.5	4	58.1	4	51.2	+ 6.9
210	Yonezawa	0.25	1895.59	37	55.2	140	05.0	4	51.1	4	58.6	− 7.5

Bracketed number shows that the station is excluded in the equations of condition.

XV. *(Continued.)*

(δ, θ, H, and I) Reduced to 1895.0 and Sea Level.

Dip θ.			Horizontal Force H.			Total Force I.			No.
Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	
54° 03.′1	54° 07.′4	− 4.′3	27930	27992	− 62	47576	47764	− 188	190
54 15.2	54 29.7	− 14.5	27966	27862	+ 104	47871	47974	− 103	191
54 47.5	54 42.7	+ 4.8	27760	27809	− 49	48148	48139	+ 9	192
55 18.0	55 05.0	+ 13.0	27524	27634	− 110	48348	48278	+ 70	193
55 28.3	55 22.7	+ 5.6	27089	27477	− 388	47791	48363	− 572	[194]
55 09.1	55 05.7	+ 3.4	27540	27551	− 11	48197	48148	+ 49	[195]
54 43.3	54 41.8	+ 1.5	27691	27713	− 22	47946	47953	− 7	196
54 57.0	54 41.5	+ 15.5	27711	27760	− 49	48253	48031	+ 222	197
49 53.4	49 46.7	+ 6.7	29581	29601	− 20	45915	45840	+ 75	198
49 08.1	49 08.4	− 0.3	29737	29712	+ 25	45451	45416	+ 35	199
49 16.7	49 17.3	− 0.6	29661	29642	+ 19	45464	45446	+ 18	200
48 55.7	49 05.8	− 10.1	29756	29673	+ 83	45291	45317	− 26	201
48 44.2	48 43.7	+ 0.5	29762	29826	− 64	45126	45217	− 91	202
48 19.0	48 26.1	− 7.1	29849	29939	− 90	44885	45125	− 240	203
48 39.5	48 47.1	− 7.6	29821	29848	− 27	45146	45301	− 155	204
49 50.0	49 50.7	− 0.7	29469	29466	+ 3	45688	45693	− 5	205
50 24.5	50 24.4	+ 0.1	29257	29259	− 2	45907	45908	− 1	206
50 58.0	51 02.0	− 4.0	29328	29034	+ 294	46569	46169	+ 400	207
51 31.1	51 40.5	− 9.4	29017	28833	+ 184	46632	46495	+ 137	[208]
51 03.2	51 23.8	− 20.6	29171	28961	+ 210	46407	46417	− 10	209
51 24.7	51 37.6	− 12.9	29047	28921	+ 126	46570	46588	− 18	210

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.		Longitude.		Declination δ. Observed		Calculated		Obs.-Cal.
211	Yamagata	0.16	1895.59	38°	16′.5	140°	21′.0	4°	44′.0	5°	01′.4	− 17′.4
212	Sinzyō	0.10	1895.60	38	46.2	140	18.0	5	09.6	5	10.2	− 0.6
213	Sakata	0.00	1895.61	38	54.5	139	48.0	5	12.0	5	18.2	− 6.2
[214]	Atumi	0.00	1895.61	38	37.1	139	35.0	...		5	15.7	...
215	Murakami	0.00	1895.61	38	12.0	139	28.5	5	10.9	5	09.9	+ 1.0
216	Oguni in Uzen...	0.10	1895.62	38	04.9	139	46.5	4	59.5	5	04.7	− 5.2
217	Tugawa	0.08	1895.63	37	39.5	139	24.0	5	08.5	5	01.5	+ 7.0
218	Wakamatu	0.22	1895.64	37	29.5	139	57.0	4	48.3	4	52.8	− 4.5
219	Tazima	0.56	1895.64	37	11.5	139	46.5	4	41.5	4	49.7	− 8.2
220	Tadami	0.37	1895.65	37	20.5	139	19.0	4	40.7	4	56.9	− 16.2
221	Nikkō	0.61	1895.66	36	44.3	139	37.5	4	26.2	4	43.5	− 17.3
222	Sukagawa	0.25	1895.66	37	15.5	140	21.0	4	51.8	4	44.5	+ 7.3
223	Nisi-nasuno.	0.20	1895.66	36	53.0	139	58.5	4	58.8	4	42.3	+ 16.5
224	Utunomiya	0.12	1895.67	36	33.4	139	54.0	4	25.6	4	37.6	− 12.0
225	Koga	0.02	1895.67	36	11.7	139	41.8	4	29.7	4	33.5	− 3.8
226	Hatiman in Ōmi	0.05	1896.50	35	07.8	136	04.3	4	43.1	4	43.1	0.0
227	Kyōto	0.04	1896.51	35	01.2	135	47.8	4	45.2	4	42.5	+ 2.7
228	Sasayama	0.25	1896.52	35	04.2	135	14.0	4	48.4	4	46.0	+ 2.4
229	Miyatu	0.00	1896.53	35	31.6	135	13.0	4	50.4	4	54.4	− 4.0
230	Obama	0.00	1896.53	35	30.8	135	44.5	4	56.1	4	51.8	+ 4.3
231	Sakai	0.00	1896.55	34	34.9	135	28.0	4	30.4	4	36.1	− 5.7

Bracketed number shows that the station is excluded in the equations of condition.

XV. *(Continued.)*

(δ, θ, H, and I) Reduced to 1895.0 and Sea Level.

Dip θ.			Horizontal Force H.			Total Force I.			No.
Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	
51° 56′.8	51° 59′.4	− 2′.6	28936γ	28771γ	+ 165γ	46944γ	46722γ	+ 222γ	211
52 27.8	52 32.3	− 4.5	28722	28587	+ 135	47142	47000	+ 142	212
52 45.0	52 44.9	+ 0.1	28648	28566	+ 82	47328	47191	+ 137	213
52 24.8	52 27.4	− 2.6	28924	28690	+ 234	47418	47083	+ 335	[214]
52 00.4	52 00.5	− 0.1	28931	28855	+ 76	46998	46877	+ 121	215
51 45.6	51 50.5	− 4.9	28958	28880	+ 78	46785	46744	+ 41	216
51 21.8	51 24.9	− 3.1	29046	29062	− 16	46520	46598	− 78	217
51 16.4	51 10.0	+ 6.4	29019	29088	− 69	46385	46387	− 2	218
51 10.1	50 51.0	+ 19.1	29070	29209	− 139	46362	46265	+ 97	219
51 05.1	51 04.2	+ 0.9	29217	29184	+ 33	46513	46444	+ 69	220
50 18.0	50 21.4	− 3.4	29462	29384	+ 78	46123	46055	+ 68	221
50 46.2	50 52.3	− 6.1	29145	29150	− 5	46083	46192	− 109	222
50 28.4	50 28.9	− 0.5	29400	29309	+ 91	46194	46060	+ 134	223
50 09.1	50 07.3	+ 1.8	29532	29433	+ 99	46089	45907	+ 182	224
49 48.4	49 44.0	+ 4.4	29455	29575	− 120	45639	45757	− 118	225
48 52.8	48 55.4	− 2.6	30191	30217	− 26	45908	45988	− 80	226
48 47.7	48 49.8	− 2.1	30256	30278	− 22	45929	45995	− 66	227
48 57.3	48 58.0	− 0.7	30239	30312	− 73	46050	46173	− 123	228
49 28.2	49 30.6	− 2.4	30159	30156	+ 3	46409	46442	− 33	229
49 22.0	49 25.2	− 3.2	30074	30113	− 39	46182	46291	− 109	230
48 36.9	48 21.1	+ 15.8	30387	30457	− 70	45963	45831	+ 132	231

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	Declination δ. Observed	Declination δ. Calculated	Declination δ. Obs.-Cal.
232	Ikuno	0.25	1896.55	35° 10'.3	134° 48'.0	4° 50'.3	4° 49'.6	+ 0'.7
233	Toyooka	0.00	1896.56	35 32.6	134 49.3	4 59.9	4 56.3	+ 3.6
234	Tottori	0.00	1896.56	35 29.7	134 14.8	5 04.4	4 57.4	+ 7.0
235	Hasizu	0.00	1896.57	35 30.4	133 54.0	5 01.0	4 58.6	+ 2.4
236	Tuyama	0.09	1896.58	35 04.0	134 01.3	4 46.4	4 50.1	− 3.7
237	Okayama	0.00	1896.58	34 40.4	133 55.8	4 39.1	4 43.0	− 3.9
238	Akō	0.00	1896.59	34 45.4	134 23.8	4 39.2	4 43.3	− 4.1
239	Akasi	0.00	1896.59	34 39.2	135 00.0	4 35.8	4 39.3	− 3.5
240	Nara	0.06	1896.60	34 40.9	135 51.0	4 27.6	4 36.1	− 8.5
241	Kamiiti	0.15	1896.61	34 23.4	135 52.0	4 26.9	4 30.7	− 3.8
242	Myōzi	0.00	1896.61	34 17.0	135 32.3	4 26.4	4 30.3	− 3.9
243	Wakayama	0.00	1896.61	34 13.6	135 11.3	4 29.0	4 30.7	− 1.7
244	Sumoto	0.00	1896.62	34 20.7	134 53.5	4 30.7	4 34.0	− 3.3
245	Minabe	0.00	1896.62	33 45.6	135 20.3	4 15.7	4 21.5	− 5.8
[246]	Tikatuyu	0.48	1896.63	33 48.9	135 36.9	...	4 21.3	...
247	Hongū	0.10	1896.64	33 49.1	135 47.5	4 18.8	4 20.6	− 1.8
248	Kusimoto	0.00	1896.64	33 28.2	135 47.0	4 10.4	4 14.2	− 3.8
249	Arima	0.00	1896.65	33 52.2	136 05.5	4 15.9	4 20.1	− 4.2
250	Nagasima	0.00	1896.66	34 12.2	136 20.5	4 21.9	4 24.8	− 2.9
251	Matusaka	0.00	1896.67	34 34.3	136 32.5	4 23.8	4 30.4	− 6.6
252	Mihara	0.00	1896.50	34 24.3	133 05.3	4 39.2	4 39.5	− 0.3

Bracketed number shows that the station is excluded in the equations of condition.

XV. (*Continued.*)

(δ, θ, H, and I) Reduced to 1895.0 and Sea Level.

Dip θ.			Horizontal Force H.			Total Force I.			No.
Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	
49° 09.2′	49° 08.9′	+ 0.3′	30165γ	30318γ	− 153γ	46121γ	46350γ	− 229γ	232
49 30.3	49 35.2	− 4.9	30187	30188	− 1	46486	46565	− 79	233
49 45.3	49 36.9	+ 8.4	30151	30260	− 109	46670	46703	− 33	234
49 49.1	49 41.0	+ 8.1	30204	30291	− 87	46812	46817	− 5	235
49 06.5	49 08.3	− 1.8	30367	30429	− 62	46387	46511	− 124	236
48 39.4	48 40.8	− 1.4	30543	30572	− 29	46237	46302	− 65	237
48 41.9	48 42.7	− 0.8	30488	30498	− 10	46190	46219	− 29	238
48 29.0	48 30.1	− 1.1	30451	30475	− 24	45940	45993	− 53	239
48 39.3	48 25.3	+ 14.0	30250	30389	− 139	45793	45791	+ 2	240
48 03.4	48 04.3	− 0.9	30448	30486	− 38	45554	45624	− 70	241
47 56.3	47 59.1	− 2.8	30506	30551	− 45	45537	45645	− 108	242
48 00.6	47 57.8	+ 2.8	30531	30601	− 70	45636	45700	− 64	243
48 08.6	48 08.8	− 0.2	30551	30589	− 38	45786	45847	− 61	244
47 24.2	47 22.9	+ 1.3	30742	30743	− 1	45420	45404	+ 16	245
47 25.1	47 24.8	+ 0.3	30599	30701	− 102	45222	45368	− 146	[246]
47 23.5	47 23.7	− 0.2	30630	30684	− 54	45245	45327	− 82	247
46 56.3	46 58.5	− 2.2	30709	30800	− 91	44977	45141	− 164	248
47 27.5	47 25.2	+ 2.3	30552	30641	− 89	45187	45286	− 99	249
47 48.4	47 47.3	+ 1.1	30405	30509	− 104	45267	45409	− 142	250
48 10.2	48 12.2	− 2.0	30319	30368	− 49	45462	45565	− 103	251
48 25.4	48 29.0	− 3.6	30867	30749	+ 118	46513	46390	+ 123	252

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.		Longitude.		Declination δ. Observed		Calculated		Obs.-Cal.	
253	Hirosima	0.00	1896.50	34°	23.0′	132°	27.0′	+4°	33.2′	+4°	39.7′	−	6.5′
254	Sitata	0.00	1896.51	33	54.3	132	19.5	+	31.9	+	30.6	+	1.3
255	Murödzumi	0.00	1896.52	33	55.7	131	58.0	+	33.1	+	31.0	+	2.1
256	Yamaguti	0.04	1896.52	34	11.7	131	29.0	+	31.9	+	35.9	−	4.0
257	Tuwano	0.16	1896.53	34	28.0	131	46.5	+	40.3	+	41.3	−	1.0
258	Hagi	0.01	1896.54	34	25.1	131	22.5	+	33.2	+	40.1	−	6.9
259	Awano............	0.00	1896.54	34	22.0	130	58.0	+	34.3	+	38.6	−	4.3
[260]	Hamada	0.00	1896.56	34	53.7	132	05.8	+	41.7	+	49.6	−	7.9
261	Itiki	0.28	1896.56	34	49.5	132	25.0	+	42.0	+	48.1	−	6.1
262	Miyosi............	0.15	1896.57	34	48.7	132	52.0	+	56.9	+	47.5	+	9.4
263	Ai..................	0.32	1896.58	35	08.0	132	57.5	+	55.1	+	53.5	+	1.6
[264]	Imaiti	0.00	1896.58	35	21.0	132	44.5	+	50.4	+	57.8	−	7.4
265	Matue	0.00	1896.59	35	28.4	133	04.0	+	52.0	+	59.7	−	7.7
266	Kurosaka.........	0.09	1896.59	35	11.0	133	23.8	+	52.8	+	53.7	−	0.9
[267]	Tōzyō	0.29	1896.60	34	53.5	133	18.0	+	41.7	+	48.4	−	6.7
268	Hukuyama...... (in Bingo)	0.00	1896.61	34	28.7	133	22.5	+	40.7	+	40.5	+	0.2
[269]	Hamabata	0.08	1896.61	34	48.2	133	37.8	...		+	46.1	...	
270	Takahasi	0.08	1896.61	34	48.8	133	37.5	+	45.4	+	46.3	−	0.9
271	Tokusima	0.00	1896.62	34	04.0	134	35.0	+	29.4	+	29.9	−	0.5
272	Wakimati	0.05	1896.63	34	05.0	134	11.8	+	30.4	+	31.3	−	0.9
273	Osato..............	0.00	1896.64	33	35.0	134	23.0	+	22.6	+	21.5	+	1.1

Bracketed number shows that the station is excluded in the equations of condition.

XV. (*Continued.*)

(δ, θ, H, and I) Reduced to 1895.0 and Sea Level.

Dip θ.			Horizontal Force H.			Total Force I.			No.
Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	
48° 29′.7	48° 33′.5	− 3′.8	30923	30825	+ 98	46663	46573	+ 90	253
48 00.8	47 59.6	+ 1.2	31009	30997	+ 12	46354	46318	+ 36	254
48 04.0	48 04.8	− 0.8	31047	31029	+ 18	46459	46444	+ 15	255
48 24.1	48 29.3	− 5.2	31029	30997	+ 32	46737	46769	− 32	256
48 46.2	48 46.3	− 0.1	30985	30873	+ 112	47012	46845	+ 167	257
48 37.4	48 46.9	− 9.5	31145	30936	+ 209	47117	46948	+ 169	258
48 40.3	48 47.3	− 7.0	31109	31002	+ 107	47109	47055	+ 54	259
49 45.4	49 14.4	+ 31.0	30354	30693	− 339	46985	47011	− 26	[260]
49 19.6	49 06.1	+ 13.5	30734	30681	+ 053	47156	46862	+ 294	261
49 11.1	49 00.7	+ 10.4	30559	30636	− 77	46754	46708	+ 46	262
49 37.2	49 23.1	+ 14.1	30728	30517	+ 211	47430	46879	+ 551	263
50 04.7	49 40.9	+ 23.8	30261	30467	− 206	47154	47087	+ 67	[264]
49 53.2	49 46.6	+ 6.6	30212	30390	− 178	46891	47060	− 169	265
49 31.7	49 22.5	+ 9.2	30493	30454	+ 39	46979	46772	+ 207	266
48 53.3	49 02.4	− 9.1	30926	30563	+ 363	47034	46624	+ 410	[267]
48 32.4	48 31.7	+ 0.7	30750	30694	+ 56	46445	46348	+ 97	268
48 51.5	48 52.9	− 1.4	...	30558	...	...	46468	...	[269]
48 49.2	48 53.7	− 4.5	30670	30556	+ 114	46580	46477	+ 103	270
47 49.6	47 51.2	− 1.6	30802	30711	+ 91	45879	45768	+ 111	171
47 52.4	47 55.7	− 3.3	30826	30743	+ 83	45957	45882	+ 75	272
47 17.3	47 17.6	− 0.3	30959	30890	+ 69	45642	45544	+ 98	273

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.		Longitude.		Declination δ. Observed		Calculated		Obs.-Cal.
274	Nawari	0.00	1896.65	33°	26.0'	134°	03.0'	4°	19.6'	4°	19.5'	+ 0.1'
275	Kōti	0.00	1896.65	33	32.8	133	33.3	4	23.6	4	22.6	+ 1.0
276	Ōtoti	0.35	1896.66	33	41.0	133	53.0	4	24.9	4	24.6	+ 0.3
277	Susaki	0.00	1896.67	33	24.0	133	17.8	4	20.8	4	20.2	+ 0.6
278	Nakamura	0.00	1896.67	32	57.7	132	55.0	4	11.8	4	12.2	− 0.4
279	Uwazima	0.00	1896.69	33	13.2	132	34.5	4	15.6	4	17.4	− 1.8
280	Wakamiya	0.01	1896.69	33	32.0	132	34.5	4	20.2	4	23.4	− 3.2
[281]	Yahatahama	0.00	1896.70	33	27.4	132	25.7	...		4	21.9	...
282	Saganoseki	0.00	1896.70	33	14.5	131	53.3	4	14.5	4	17.5	− 3.0
283	Saiki	0.00	1896.71	32	56.9	131	52.5	4	09.4	4	12.0	− 2.6
284	Oita	0.00	1896.72	33	15.0	131	36.0	4	16.7	4	17.7	− 1.0
285	Matuyama	0.00	1896.72	33	52.0	132	45.0	4	27.9	4	29.7	− 1.8
286	Kuzu in Iyo......	0.33	1896.73	33	33.8	132	58.5	4	22.7	4	23.7	− 1.0
287	Kuma „ „	0.53	1896.73	33	39.4	132	53.5	4	26.7	4	25.5	+ 1.2
288	Imabaru	0.00	1896.74	34	04.0	133	01.5	4	32.8	4	33.2	− 0.4
289	Kawanoe.........	0.00	1896.75	34	02.0	133	35.0	4	30.3	4	31.8	− 1.5
290	Marugame........	0.00	1896.75	34	16.9	133	49.0	4	31.0	4	36.0	− 5.0
291	Takamatu........	0.00	1896.75	34	21.0	134	02.8	4	37.5	4	36.7	+ 0.8
292	Tonosyō	0.00	1896.76	34	29.0	134	10.5	4	38.6	4	38.8	− 0.2
293	Zaikōzi	0.00	1896.52	32	24.2	131	36.8	4	01.2	4	01.1	+ 0.1
294	Miyazaki	0.00	1896.52	31	55.2	131	25.3	3	59.0	3	51.5	+ 7.5

Bracketed number shows that the station is excluded in the equations of condition.

XV. *(Continued.)*

(δ, θ, H, and I) Reduced to 1895.0 and Sea Level.

Dip θ.			Horizontal Force H.			Total Force I.			No.
Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	
47° 09.2′	47° 09.4′	− 0.2′	31019γ	30971γ	+ 48γ	45614γ	45547γ	+ 67γ	274
47 17.4	47 22.0	− 4.6	31069	30984	+ 85	45806	45747	+ 59	275
47 32.4	47 29.2	+ 3.2	30971	30906	+ 65	45879	45735	+ 144	276
47 17.2	47 13.4	+ 3.8	31063	31058	+ 5	45793	45731	+ 62	277
46 46.8	46 44.3	+ 2.5	31286	31239	+ 47	45686	45583	+ 103	278
47 07.6	47 06.5	+ 1.1	31205	31192	+ 13	45864	45829	+ 35	279
47 27.0	47 29.8	− 2.8	31142	31091	+ 51	46052	46018	+ 34	280
47 34.9	47 25.5	+ 9.4	31116	31132	− 16	46130	46015	+ 115	[281]
47 09.9	47 14.6	− 4.7	31384	31261	+ 123	46162	46047	+ 115	282
46 58.2	46 52.8	+ 5.4	31297	31356	− 59	45864	45873	− 9	283
47 21.0	47 18.0	+ 3.0	31079	31291	− 212	45872	46141	− 269	184
47 50.5	47 52.7	− 2.2	30995	30963	+ 32	46180	46165	+ 15	285
47 31.5	47 28.3	+ 3.2	31067	31038	+ 29	46007	45917	+ 90	286
47 36.0	47 36.0	0.0	31008	31016	− 8	45985	45998	− 13	287
48 04.3	48 04.9	− 0.6	30924	30868	+ 56	46280	46205	+ 75	288
47 55.5	47 57.4	− 1.9	30899	30821	+ 78	46108	46024	+ 84	289
48 10.2	48 13.4	− 3.2	30862	30714	+ 148	46275	46102	+ 173	290
48 14.6	48 16.3	− 1.7	30783	30669	+ 114	46222	46078	+ 144	291
48 24.0	48 24.9	− 0.9	30643	30611	+ 32	46154	46120	+ 34	292
46 14.2	46 14.3	− 0.1	31586	31559	+ 27	45667	45628	+ 39	293
45 39.9	45 39.4	+ 0.5	31737	31731	+ 6	45414	45397	+ 17	294

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	Declination δ. Observed	Declination δ. Calculated	Declination δ. Obs.-Cal.
295	Miyakonozyō ...	0.14	1896.53	31° 42.′8	131° 03.′0	3° 40.′8	3° 46.′7	− 5.′9
296	Nakamati	0.00	1896.53	31 26.2	131 11.3	3 40.0	3 41.5	− 1.5
297	Kōyama	0.10	1896.54	31 20.5	130 55.5	3 42.5	3 39.1	+ 3.4
298	Kagosima	0.00	1896.54	31 35.4	130 32.5	3 36.9	3 43.1	− 6.2
[299]	Itiki, Satuma ...	0.00	1896.55	31 41.6	130 16.0	3 57.5	3 44.4	+ 13.1
300	Makurazaki	0.00	1896.55	31 17.0	130 16.5	3 44.9	3 36.2	+ 8.7
[301]	Kaseda...........	0.00	1896.56	31 25.0	130 19.1	...	3 39.0	...
[302]	Yokogawa	0.18	1896.56	31 54.2	130 41.5	3 58.1	3 49.7	+ 8.4
303	Hitoyosi	0.12	1896.57	32 12.1	130 46.5	4 09.4	3 55.8	+ 13.6
304	Yunomae.........	0.66	1896.57	32 15.8	130 59.0	4 00.8	3 57.5	+ 3.3
305	Yatusiro	0.00	1896.58	32 29.7	130 36.0	4 00.9	4 01.2	− 0.3
306	Minamata	0.00	1896.58	32 12.4	130 23.5	3 58.3	3 54.9	+ 3.4
307	Simabara.........	0.00	1896.59	32 46.1	130 22.5	4 07.2	4 06.1	+ 1.1
[308]	Nagasaki	0.00	1896.59	32 45.0	129 52.5	4 24.8	4 04.2	+ 20.6
309	Sasebo	0.00	1896.60	33 10.5	129 44.3	4 11.0	4 12.2	− 1.2
310	Matiyamaguti...	0.00	1896.61	32 27.5	130 10.8	3 55.5	3 59.4	− 3.9
311	Kumamoto	0.02	1896.61	32 48.0	130 44.0	4 09.0	4 07.5	+ 1.5
312	Miyadi	0.51	1896.62	32 55.8	131 07.4	3 51.8	4 10.8	− 19.0
[313]	Mamibara	0.54	1896.62	32 39.2	131 09.5	3 45.5	4 05.5	− 20.0
314	Yanagawa	0.00	1896.63	33 09.6	130 24.8	4 11.6	4 13.9	− 2.3
315	Hukuoka	0.00	1896.63	33 35.2	130 23.8	4 23.5	4 22.3	+ 1.2

Bracketed number shows that the station is excluded in the equations of condition.

XV. (*Continued.*)

(θ, θ, H, and I) Reduced to 1895.0 and Sea Level.

Dip θ.			Horizontal Force H.			Total Force I.			No.
Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	
45° 23'.7	45° 27'.1	− 3'.4	31825	31838	− 13	45321	45386	− 65	295
45 05.9	45 04.7	+ 1.2	31912	31907	+ 5	45204	45186	+ 18	296
44 53.2	44 59.8	− 6.6	32036	31966	+ 70	45217	45204	+ 13	297
45 28.2	45 22.5	+ 5.7	31847	31936	− 89	45413	45463	− 50	298
45 09.1	45 33.1	− 24.0	32319	31938	+ 381	45826	45608	+ 218	[299]
45 12.7	45 01.5	+ 11.2	31961	32062	− 101	45367	45363	+ 4	300
45 10.9	45 11.4	− 0.5	32067	32016	+ 51	45496	45428	+ 68	[301]
45 09.1	45 45.0	− 35.9	31725	31822	− 97	44984	45604	− 620	[302]
46 00.5	46 07.0	− 6.5	31701	31719	− 18	45642	45758	− 116	303
46 00.9	46 09.7	− 8.8	31689	31675	+ 14	45631	45732	− 101	304
46 31.2	46 31.0	+ 0.2	31713	31649	+ 64	46088	45992	+ 96	305
46 06.0	46 11.2	− 5.2	32063	31764	+ 299	46240	45882	+ 358	306
46 55.3	46 54.0	+ 1.3	31385	31590	− 205	45952	46234	− 282	307
47 17.5	46 57.8	+ 19.7	31864	31658	+ 206	46979	46387	+ 592	[308]
47 30.9	47 31.4	− 0.5	31460	31541	− 81	46580	46708	− 128	309
46 27.7	46 32.4	− 4.7	31699	31711	− 12	46018	46102	− 84	310
46 51.4	46 52.7	− 1.3	31365	31537	− 172	45868	46137	− 269	311
47 03.5	46 58.6	+ 4.9	31489	31449	+ 40	46222	46094	+ 128	312
47 22.0	46 38.2	+ 43.8	31467	31532	− 65	46460	45924	+ 536	[313]
47 22.5	47 23.1	− 0.6	31425	31461	− 36	46406	46465	− 59	314
48 01.0	47 55.4	+ 5.6	31206	31326	− 120	46652	46748	− 96	315

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	Declination δ. Observed	Declination δ. Calculated	Declination δ. Obs.-Cal.
316	Kokura	0.00	1896.64	33° 53.3′	130° 53.5′	4° 44.1′	4° 29.2′	+ 14.9′
317	Nakatu	0.00	1896.64	33 36.5	131 11.3	4 27.0	4 24.2	+ 2.8
318	Nakamatama ...	0.00	1896.65	33 36.0	131 30.0	4 26.3	4 24.4	+ 1.9
319	Kuma, Bungo ..	0.08	1896.65	33 18.5	130 57.0	4 35.3	4 17.9	+ 17.4
320	Karatu...........	0.00	1896.66	33 26.5	129 59.5	4 18.8	4 18.3	+ 0.5

XV. *(Continued.)*

(δ, θ, H, and I) Reduced to 1895.0 and Sea Level.

Dip θ.			Horizontal Force H.			Total Force I.			No.
Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	Observed	Calculated	Obs.-Cal.	
48° 16.′1	48° 12.′7	+ 3.′4	31181	31168	+ 13	46841	46772	+ 69	316
47 58.5	47 48.8	+ 9.7	31141	31223	− 82	46517	46494	+ 23	317
47 51.1	47 45.0	+ 6.1	31185	31190	− 5	46472	46388	+ 84	318
46 59.3	47 28.8	− 29.5	31281	31348	− 67	45856	46383	− 527	319
47 54.2	47 48.9	+ 5.3	31290	31423	− 133	46676	46794	− 118	320

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	North Compt. X Observed	North Compt. X Calculated	West Compt. Y Observed	West Compt. Y Calculated
1*a*	Tōkyō	0.02	1893–96	35° 42.0′	139° 46.0′	29672	29659	2287	2285
1*b*	,,	0.02	1896.50	35 41.0	139 45.0	29726	29666	2319	2284
2	Hatiōzi	0.11	1893.51 / 1895.48	35 40.0	139 20.0	29671	29695	2374	2321
[3]	Saruhasi	0.31	1893.52	35 36.4	138 58.8	29100	29738	2592	2344
[4]	Kōhu	0.26	1893.52	35 39.5	138 34.5	28794	29744	2463	2384
5	Uminokuti	1.07	1893.53	35 59.0	138 27.3	29750	29633	2225	2433
6	Usuta	0.74	1893.54	36 11.0	138 28.1	29845	29559	2442	2456
[7]	Komoro	0.67	1893.54	36 19.7	138 26.0	29399	29507	2467	2476
8	Miyota	0.80	1893.54	36 19.5	138 30.5	29555	29504	2435	2470
9	Karuizawa	0.97	1893.55	36 21.7	138 38.3	29618	29482	2448	2464
[10]	Kutukake	0.99	1893.55	36 20.8	138 33.0	...	29494	...	2469
11	Ueda	0.43	1893.56	36 24.0	138 15.6	29756	29492	2644	2498
12	Kamisuwa	0.71	1893.56	36 02.3	138 07.7	29767	29635	2513	2465
13	Matumoto	0.69	1893.57	36 14.0	137 59.0	29499	29573	2376	2500
14	Ōmati	0.69	1893.58	36 28.0	137 49.5	295[illegible]3	29498	2555	2541
[15]	Kuruma	0.60	1893.58	36 48.0	137 51.0	29662	29372	2473	2577
16	Itoigawa	0.00	1893.59 / 1893.77	37 02.5	137 52.0	29128	29280	2620	2605
17	Takata	0.00	1893.59	37 06.8	138 16.0	29241	29226	2659	2581
18	Sekiyama	0.56	1893.60	36 56.5	138 13.5	29228	29294	2562	2565
19	Nagano	0.38	1893.60	36 39.8	138 12.0	29232	29399	2539	2534
20	Iiyama	0.31	1893.61	36 52.3	138 22.2	29247	29311	2620	2545
21	Tōkamati	0.16	1893.62	37 09.0	138 44.0	29255	29183	2577	2547

Bracketed number shows that the station is excluded in the equations of condition.

XVI.

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z		North Compt. ΔX	West Compt. ΔY	Upward Compt. ΔZ	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth N-W-S-E-N	Altitude.*	No.
Observed	Calculated	Obs.-Cal.	Obs.-Cal.	Obs.-Cal.					
−34329γ	−34414γ	+ 13γ	+ 2γ	+ 85γ	13γ	86γ	9°	+ 81°	1a
−34299	−34400	+ 60	+ 35	+ 101	69	123	30	+ 56	1b
−34290	−34467	− 24	+ 53	+ 177	58	186	114	+ 72	2
−34535	−34477	− 638	+ 248	− 58	685	687	159	− 5	[3]
−34714	−34615	− 950	+ 79	− 99	953	958	175	− 6	[4]
−34647	−34967	+ 117	− 208	+ 320	239	399	299	+ 53	5
−35424	−35166	+ 286	− 14	− 258	286	385	357	− 42	6
−36320	−35320	− 108	− 9	− 1000	108	1006	185	− 84	[7]
−35283	−35299	+ 51	− 35	+ 16	62	64	326	+ 14	8
−35234	−35306	+ 136	− 16	+ 72	137	155	353	+ 28	9
−34613	−35312	...	...	+ 699	...	...	...	+ ...	[10]
−35654	−35432	+ 264	+ 146	− 222	302	375	29	− 36	11
−35264	−35098	+ 132	+ 48	− 166	140	217	20	− 50	12
−35279	−35330	− 74	− 124	+ 51	144	153	239	+ 20	13
−35626	−35607	+ 5	+ 14	− 19	15	24	70	− 52	14
−35799	−35941	+ 290	− 104	+ 142	308	339	340	+ 25	[15]
−36142	−36183	− 152	+ 15	+ 41	153	158	174	+ 15	16
−36145	−36153	+ 15	+ 78	+ 8	79	80	79	+ 6	17
−36081	−35989	− 66	− 3	− 92	66	113	183	− 54	18
−35666	−35714	− 167	+ 5	+ 48	167	174	178	+ 16	19
−35901	−35884	− 64	+ 75	− 17	99	100	131	− 10	20
−36163	−36076	+ 72	+ 30	− 87	78	117	23	− 48	21

* + from the horison toward the zenith. − from the horison toward the nadir.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Lati-tude.	Longi-tude.	North Compt. X Ob-served	North Compt. X Calcu-lated	West Compt. Y Ob-served	West Compt. Y Calcu-lated
22	Nagaoka.........	0.03	1893.64	37° 27'.0	138° 52'.2	28892γ	29061γ	2649γ	2570γ
[23]	Kasiwazaki	0.00	1893.63	37 22.5	138 34.3	...	29108	...	2589
[24]	Teradomari.....	0.00	1893.64	37 38.2	138 45.5	...	28997	...	2600
25	Niigata...........	0.00	1893.64 } 1895.62 }	37 54.8	139 02.2	28766	28875	2766	2606
[26]	Kamo	0.10	1893.65	37 37.5	139 03.0	28858	28983	2782	2573
27	Sibata	0.02	1893.66	37 56.0	139 19.0	28787	28850	2812	2583
28	Ebisu	0.00	1893.67	38 05.2	138 25.5	28866	28847	2911	2678
29	Wasizaki.........	0.00	1893.67	38 18.5	138 31.0	28652	28755	2873	2694
30	Aikawa	0.05	1893.68	38 02.5	138 14.2	28621	28876	2694	2688
31	Ogi	0.20	1893.69	37 49.0	138 15.4	29138	28961	2631	2662
[32]	Ozasa	0.90	1893.70	36 29.6	138 30.5	29461	29442	2149	2490
[33]	Wakasare	1.40	1893.70	36 24.6	138 34.2	29805	29469	1974	2475
[34]	Asama............	2.45	1893.70	36 24.0	138 30.5	30151	29476	1694	2479
35	Matuida	0.26	1893.70	36 18.5	138 48.6	29528	29491	2421	2443
36	Takasaki	0.10	1893.71	36 19.5	139 00.5	29496	29473	2529	2428
37	Numata..........	0.42	1893.72 } 1895.49 }	36 39.2	139 02.0	29345	29350	2405	2465
38	Kumagai.........	0.03	1893.72	36 09.0	139 23.2	29475	29516	2229	2374
39	Odawara.........	0.00	1893.74	35 15.0	139 09.8	30121	29856	2411	2284
[40]	Atami............	0.00	1893.75	35 05.7	139 05.0	29265	29916	2275	2272
[41]	Simoda	0.00	1893.77	34 40.5	138 57.8	30123	30072	1951	2228
42	Matuzaki	0.00	1893.78	34 45.3	138 48.5	30061	30053	2305	2252

Bracketed number shows that the station is excluded in the equations of condition.

XVI. *(Continued.)*

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z Observed	Upward Compt. Z Calculated	North Compt. ΔX Obs.-Cal.	West Compt. ΔY Obs.-Cal.	Upward Compt. ΔZ Obs.-Cal.	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth N-W-S-E-N	Altitude.*	No.
γ	γ	γ	γ	γ	γ	γ			
−36679	−36344	− 169	+ 79	− 335	187	383	155°	− 61°	22
−36824	−36342	...	...	− 482	...	...	...	− ...	[23]
−36765	−36560	...	...	− 205	...	...	...	− ...	[24]
−36870	−36768	− 109	+ 160	− 102	194	219	124	− 28	25
−37068	−36475	− 125	+ 209	− 593	244	641	121	− 68	[26]
−36622	−36717	− 63	+ 229	+ 95	238	256	105	+ 22	27
−36934	−37099	+ 19	+ 233	+ 165	234	286	85	+ 35	28
−37082	−37298	− 103	+ 179	+ 217	207	300	120	+ 46	29
−37002	−37104	− 255	+ 6	+ 102	255	275	179	+ 22	30
−36694	−36870	+ 177	− 31	+ 176	180	252	350	+ 44	31
−36348	−35470	+ 19	− 341	− 878	342	942	273	− 69	[32]
−35598	−35372	+ 336	− 501	− 226	603	644	304	− 21	[33]
−38311	−35375	+ 675	− 785	− 2936	1035	3113	311	− 71	[34]
−35294	−35214	+ 37	− 22	− 80	43	91	329	− 62	35
−35433	−35188	+ 23	+ 101	− 245	104	266	77	− 67	36
−35491	−35508	− 5	− 60	+ 17	60	63	265	+ 16	37
−35193	−34933	− 41	− 145	− 260	151	3 1	254	− 60	38
−34947	−34088	+ 265	+ 127	− 859	294	908	26	− 71	39
−33725	−33949	− 651	+ 3	+ 224	651	688	180	+ 19	[40]
−33394	−33555	+ 51	− 277	+ 161	282	324	280	+ 30	[41]
−33719	−33663	+ 8	+ 53	− 56	54	78	81	− 46	42

* + from the horison toward the zenith. − from the horison toward the nadir.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	North Compt. X Observed	North Compt. X Calculated	West Compt. Y Observed	West Compt. Y Calculated
				° ′	° ′	γ	γ	γ	γ
43	Hudisawa	0.00	1893.79	35 20.8	139 29.3	29529	29802	2358	2268
44	Ōtu	0.00	1893.81	35 15.4	139 42.5	29748	29822	2232	2236
[45]	Midono	0.55	† 1893.82 * 1893.51	35 20.0	138 54.0	29131	29841	2252	2317
[46]	Yosida	0.84	† 1893.81 * 1893.51	35 28.0	138 48.0	29643	29799	1812	2342
[47]	Umagaesi	1.00	† 1893.81 * 1893.52	35 25.0	138 47.0	28737	29818	2380	2337
[48]	Huzi, East side Syakadake ...	3.73	1893.53	35 21.7	138 44.0	...	29838	...	2334
[49]	„ Sainokawara near Kinmeisui.	3.60	1893.53	35 21.7	138 43.8	...	29841	...	2334
[50]	„ Sainokawara near Ginmeisui.	3.72	1893.53	35 21.4	138 43.9	...	29843	...	2334
[51]	„ Bottom of Crater.........	3.56	1893.53	35 21.5	138 43.9	...	29842	...	2334
[52]	Murayama	0.50	† 1893.80 * 1893.53	35 15.0	138 40.0	30550	29886	1650	2326
[53]	Hiromibara	0.73	† 1893.80 * 1893.54	35 21.1	138 36.7	29711	29852	1710	2343
[54]	„ Down Uzuragoya ..	0.69	1893.54	35 21.0	138 36.3	...	29853	...	2343
[55]	„ Up Uzuragoya...	0.78	1893.54	35 21.1	138 37.2	...	29851	...	2342
[56]	Mituike	0.82	1893.54	35 22.4	138 35.9	...	29845	...	2346
[57]	Mituike Cave...	0.82	1893.54	35 22.4	138 35.9	...	29845	...	2346
[58]	Front of Mituike Cave.	0.82	1893.54	35 22.4	138 35.9	...	29845	...	2346
[59]	Front of Hitoana	0.69	1893.55	35 21.5	138 35.5	...	29851	...	2345
[60]	Itimaiiwa in Hitoana	0.69	1893.55	35 21.5	138 35.5	...	29851	...	2345
[61]	Front of Hitoana	0.69	1893.55	35 21.5	138 35.5	...	29851	...	2345
[62]	Ōmiya...........	0.11	† 1893.79 * 1893.55	35 13.5	138 38.0	30187	29896	2310	2326
63	Numazu	0.00	† 1893.82 * 1893.55	35 05.0	138 52.5	30018	29932	2324	2287

Bracketed number shows that the station is excluded in the equations of condition.

† Epoch for the observation of δ. * Epoch for the observations of θ and H.

XVI. *(Continued.)*

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z Observed	Upward Compt. Z Calculated	North Compt. ΔX Obs.-Cal.	West Compt. ΔY Obs.-Cal.	Upward Compt. ΔZ Obs.-Cal.	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth N-W-S-E-N	Altitude.*	No.
γ	γ	γ	γ	γ	γ	γ	°	°	
−34130	−34119	− 273	+ 90	− 11	287	288	162	− 2	43
−33844	−33989	− 74	− 4	+ 145	74	163	183	+ 63	44
−34618	−34222	− 710	− 65	− 396	713	816	185	− 29	[45]
−34448	−34376	− 156	− 530	− 72	552	557	254	− 7	[46]
−34883	−34328	− 1081	+ 43	− 555	1082	1216	178	− 27	[47]
−44174	−34281	...	...	− 9893	...	...	...	− ...	[48]
−38496	−34286	...	...	− 4210	...	...	...	− ...	[49]
−41414	−34280	...	...	− 7134	...	...	...	− ...	[50]
−34330	−34281	...	...	− 49	...	...	...	− ...	[51]
−35109	−34187	+ 664	− 676	− 922	948	1322	315	− 44	[52]
−34552	−34300	− 141	− 633	− 252	649	696	257	− 21	[53]
−33972	−34300	...	...	+ 328	...	...	...	+ ...	[54]
−35257	−34297	...	...	− 960	...	...	...	− ...	[55]
−28614	−34324	...	...	+ 5710	...	...	...	+ ...	[56]
−33516	−34324	...	...	+ 808	...	...	...	+ ...	[57]
−31949	−34324	...	...	+ 2375	...	...	...	+ ...	[58]
−30794	−34311	...	...	+ 3517	...	...	...	+ ...	[59]
−27671	−34311	...	...	+ 6640	...	...	...	+ ...	[60]
−28695	−34311	...	...	+ 5616	...	...	...	+ ...	[61]
−34322	−34169	+ 291	− 16	− 153	291	329	357	− 28	[62]
−33891	−33978	+ 86	+ 37	+ 87	94	128	23	+ 43	63

* + from the horison toward the zenith. − from the horison toward the nadir.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	North Compt. X Observed	North Compt. X Calculated	West Compt. Y Observed	West Compt. Y Calculated
64	Simizu	0.00	† 1893.79 * 1893.56	35° 00′.5	138° 30′.0	30072 γ	29982 γ	2203 γ	2309 γ
65	Nisinoto	0.14	† 1893.78 * 1893.56	35 02.0	137 50.0	29960	30017	2305	2362
66	Okazaki	0.05	† 1893.77 * 1893.57	34 56.5	137 08.0	30016	30099	2378	2398
67	Kōwa	0.00	† 1893.74 * 1893.58	34 46.0	136 55.5	30158	30176	2421	2389
68	Narumi	0.00	† 1893.75 * 1893.58	35 05.0	136 58.0	30033	30061	2449	2428
69	Nagoya	0.00	† 1893.71 * 1893.58 1896.76	35 10.5	136 56.0	30084	30031	2476	2441
70	Maegasu	0.00	† 1893.71 * 1893.59	35 06.0	136 44.0	30073	30073	2460	2444
71	Yokkaiti	0.00	† 1893.72 * 1893.59	34 58.5	136 37.5	30108	30126	2429	2434
72	Kameyama	0.09	† 1893.72 * 1893.59 1896.65	34 52.0	136 28.0	30102	30176	2399	2430
73	Tu	0.00	† 1893.73 * 1893.60	34 43.0	136 31.0	30113	30225	2355	2406
74	Kamiyasiro	0.00	† 1893.73 * 1893.60	34 30.0	136 45.0	30252	30284	2369	2365
75	Toba	0.05	† 1893.73 * 1893.61	34 29.0	136 50.0	30321	30282	2358	2357
76	Katikawa	0.00	† 1893.76 * 1893.61	35 13.0	136 58.0	29991	30014	2488	2445
77	Kiyosu	0.00	† 1893.75 * 1893.61	35 12.0	136 51.0	29984	30028	2455	2449
78	Gihu	0.15	† 1893.68 * 1893.62	35 25.5	136 46.0	29961	29954	2487	2484
79	Nakatugawa	0.30	† 1893.77 * 1893.63	35 20.0	137 32.0	29802	29877	2462	2441
80	Iida	0.53	† 1893.78 * 1893.64	35 31.0	137 50.0	29764	29844	2379	2423
81	Matuō	0.53	1893.64	35 29.0	137 52.0	29744	29853	2408	2417
[82]	Hukusima	0.78	1893.65	35 50.0	137 42.0	29503	29739	2559	2472
83	Nomugi	1.16	1893.65	36 02.0	137 35.0	29831	29673	2580	2505
84	Takayama	0.56	1893.66	36 08.0	137 16.5	29712	29660	2528	2539

Bracketed number shows that the station is excluded in the equations of condition.
† Epoch for the observation of δ. * Epoch for the observations of θ and H.

XVI. *(Continued.)*

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z Observed	Upward Compt. Z Calculated	North Compt. ΔX Obs.-Cal.	West Compt. ΔY Obs.-Cal.	Upward Compt. ΔZ Obs.-Cal.	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth N-W-S-E-N	Altitude.*	No.
−34144	−33980	+ 90	− 106	− 164	139	215	310°	− 50°	64
−34130	−34145	− 57	− 57	+ 15	81	82	225	+ 10	65
−34089	−34211	− 83	− 20	+ 122	85	149	194	+ 55	66
−34067	−34079	− 18	+ 32	+ 13	37	39	119	+ 19	67
−34372	−34396	− 28	+ 21	+ 24	35	42	143	+ 34	68
−34468	−34498	+ 53	+ 35	+ 30	64	70	33	+ 25	69
−34477	−34469	0	+ 10	− 8	16	18	90	− 27	70
−34315	−34367	− 18	− 5	+ 52	19	55	196	+ 70	71
−34199	−34293	− 74	− 31	+ 94	80	124	203	+ 50	72
−34231	−34126	− 112	− 51	− 105	123	162	204	− 41	73
−33880	−33847	− 32	+ 4	− 33	32	46	173	− 46	74
−33722	−33806	+ 39	+ 1	+ 84	39	93	1	+ 65	75
−34491	−34533	− 23	+ 43	+ 42	49	64	118	+ 41	76
−34514	−34545	− 44	+ 0	+ 34	44	56	172	+ 38	77
−34742	−34799	+ 7	+ 3	+ 57	8	58	23	+ 82	78
−34554	−34672	− 75	+ 21	+ 118	78	141	164	+ 57	79
−34473	−34637	− 80	− 44	+ 164	91	188	209	+ 61	80
−34546	−34595	− 109	− 9	+ 49	109	120	185	+ 24	81
−35761	−34991	− 236	+ 87	− 770	252	810	160	− 72	[82]
−35213	−35222	+ 158	+ 75	+ 9	175	175	25	+ 3	83
−35248	−35403	+ 52	− 11	+ 155	53	164	348	+ 71	84

* + from the horison toward the zenith. − from the horison toward the nadir.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	North Compt. X Observed	North Compt. X Calculated	West Compt. Y Observed	West Compt. Y Calculated
85	Gero	0.58	1893.67	35° 48′.0	137° 16′.0	29799γ	29781γ	2494γ	2498γ
86	Hatiman, Mino	0.21	1893.67	35 44.0	136 57.0	29902	29829	2525	2511
87	Nagamine.......	0.37	1893.68	35 40.5	136 35.0	29830	29878	2577	2526
88	Nagahama	0.05	1893.69 1896.54	35 22.5	136 15.0	29997	30013	2517	2507
89	Turuga..........	0.00	1893.69	35 39.0	136 02.0	30043	29931	2528	2555
90	Takehu	0.04	1893.70	35 53.0	136 11.0	30220	29835	2582	2576
91	Ōno..............	0.20	1893.70	35 59.0	136 30.0	29788	29773	2527	2570
92	Sioya	0.00	1893.71	36 16.5	136 17.0	29588	29684	2620	2619
93	Kanazawa.......	0.00	1893.72	36 33.7	136 40.0	29501	29548	2618	2631
94	Nanao	0.00	1893.72	37 03.5	137 00.0	29407	29338	2668	2668
95	Wazima	0.00	1893.73	37 22.5	136 55.0	29082	29226	2676	2710
96	Toyama.........	0.01	1893.74	36 40.0	137 13.7	29221	29466	2612	2606
97	Mozumi.........	0.40	1893.75	36 28.0	137 14.0	29678	29540	2567	2582
98	Mikkaiti	0.00	1893.76	36 51.0	137 28.0	29365	29381	2655	2611
99	Abuta...........	0.00	1894.50	42 33.1	140 45.3	26534	26903	2875	2874
100	Osyamanbe	0.00	1894.51	42 30.7	140 22.4	27101	26940	2782	2912
101	Suttu	0.00	1894.52	42 47.3	140 13.4	26841	26830	2839	2950
102	Iwanai	0.00	1894.52	42 58.8	140 30.8	26622	26732	2997	2935
[103]	Yobetu..........	0.10	1894.53	43 19.7	140 22.8	26884	26590	2829	2976
[104]	Hunama	0.00	1894.53	43 19.5	140 33.4	26589	26582	2241	2957
[105]	Otaru	0.00	1894.54	43 12.0	141 00.5	26604	26612	2906	2897

Bracketed number shows that the station is excluded in the equations of condition.

XVI. *(Continued.)*

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z Observed	Upward Compt. Z Calculated	North Compt. ΔX Obs.-Cal.	West Compt. ΔY Obs.-Cal.	Upward Compt. ΔZ Obs.-Cal.	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth N-W-S-E-N	Altitude.*	No.
″ −35020	″ −35062	″ + 18	″ − 4	″ + 42	″ 18	″ 46	° 347	° + 67	85
−34978	−35072	+ 73	+ 14	+ 94	74	120	11	+ 52	86
−35028	−35103	− 39	+ 51	+ 75	64	99	127	+ 50	87
−34788	−34878	− 16	+ 10	+ 90	19	92	148	+ 78	88
−35196	−35224	+ 112	− 27	+ 28	115	119	346	+ 14	89
−35478	−35430	+ 394	+ 0	− 48	394	397	1	− 7	90
−35552	−35449	+ 15	− 43	− 103	46	113	289	− 66	91
−35762	−35812	− 96	+ 1	+ 50	96	108	179	+ 28	92
−36267	−36007	− 47	− 13	− 260	49	265	195	− 79	93
−36660	−36434	+ 69	0	− 226	69	236	0	− 73	94
−36764	−36787	− 144	− 34	+ 23	148	150	193	+ 9	95
−35971	−35963	− 245	+ 6	− 8	245	245	179	− 2	96
−35521	−35756	+ 138	− 15	+ 235	139	273	354	+ 59	97
−35981	−36089	− 16	+ 44	+ 108	47	118	110	+ 66	98
−40696	−40858	− 369	+ 1	+ 162	369	403	180	+ 24	99
−40839	−40942	+ 161	− 130	+ 103	207	231	321	+ 26	100
−41122	−41262	+ 11	− 111	+ 140	112	179	276	+ 51	101
−41051	−41353	− 110	+ 62	+ 302	126	327	151	+ 68	102
−41567	−41738	+ 294	− 147	+ 171	329	371	333	+ 27	[103]
−41938	−41674	+ 7	− 716	− 264	716	763	271	− 20	[104]
−41481	−41402	− 8	+ 9	− 79	12	80	132	− 81	[105]

* + from the horison toward the zenith. − from the horison toward the nadir.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	North Compt. X Observed	North Compt. X Calculated	West Compt. Y Observed	West Compt. Y Calculated
				° ′	° ′	γ	γ	γ	γ
106	Otaru Myōkenzan...	0.04	1894.62	43 11.9	141 00.6	26759	26613	2952	2897
107	Sapporo	0.00	1894.55	43 04.8	141 21.0	26342	26647	2851	2849
[108]	Iwamizawa......	0.00	1894.56	43 12.9	141 45.0	26362	26571	2518	2812
109	Soratipt..........	0.00	1894.56	43 34.0	141 54.7	26439	26411	2702	2819
110	Tip-Yabusi......	0.21	1894.57	43 26.5	142 17.2	26420	26449	2569	2764
111	Asahikawa......	0.00	1894.58	43 46.5	142 20.2	26255	26302	2915	2782
[112]	Ohotukawa......	0.10	1894.59	43 43.2	141 57.0	...	26343	...	2825
[113]	Porokamuikotan	0.70	1894.60	44 00.0	142 06.0	26284	26214	2855	2828
114	Masike	0.00	1894.64	43 51.3	141 31.8	26366	26302	2842	2885
115	Sirasitomari	0.00	1894.64	44 18.7	141 39.0	26079	26097	2954	2903
116	Hūren............	0.00	1894.65	44 34.6	141 46.7	25982	25974	2837	2907
117	Tesio.............	0.00	1894.66	44 53.3	141 44.1	25761	25837	2896	2932
[118]	Pōsinai-pitari...	0.00	1894.67	44 50.2	142 03.7	25978	25845	2495	2890
[119]	Okurumatomanai	0.04	1894.68	44 36.0	142 17.8	25926	25940	3224	2845
[120]	Nayoropt	0.08	1894.69	44 23.4	142 27.2	26018	26028	3128	2811
[121]	Nuppamamoi...	0.01	1894.70	44 54.3	141 59.0	...	25818	...	2904
[122]	Wakasakanai...	0.00	1894.70	45 06.7	141 37.0	...	25742	...	2961
123	Wakkanai.......	0.00	1894.71	45 24.0	141 39.0	25600	25612	3066	2975
124	Sōya	0.00	1894.71	45 29.4	141 52.7	25585	25560	2986	2954
[125]	Sarubutu........	0.00	1894.72	45 16.7	142 14.0	25546	25640	3263	2897
[126]	Esasi.............	0.00	1894.73	44 57.0	142 34.9	24992	25773	3091	2832

Bracketed number shows that the station is excluded in the equations of condition.

XVI. *(Continued.)*

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z Observed	Upward Compt. Z Calculated	North Compt. ΔX Obs.-Cal.	West Compt. ΔY Obs.-Cal.	Upward Compt. ΔZ Obs.-Cal.	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth. N-W-S-E-N	Altitude.*	No.
γ	γ	γ	γ	γ	γ	γ	°	°	
−41465	−41401	+ 146	+ 55	− 64	156	169	21	− 22	106
−41030	−41183	− 305	+ 2	+ 153	305	341	180	+ 27	107
−41163	−41189	− 209	− 294	+ 26	361	362	235	+ 4	[108]
−41510	−41468	+ 28	− 117	− 42	120	127	283	− 19	109
−41292	−41241	− 29	− 195	− 51	197	204	262	− 15	110
−41484	−41536	− 47	+ 133	+ 52	141	150	109	+ 20	111
−41866	−41601	...	...	− 265	...	...	...	− ...	[112]
−42443	−41817	+ 70	+ 27	− 631	75	635	21	− 83	[113]
−41758	−41861	+ 64	− 43	+ 103	77	129	326	+ 53	114
−42435	−42253	− 18	+ 51	− 182	54	190	109	− 73	115
−42526	−42459	+ 8	− 70	− 67	70	97	277	− 44	116
−42838	−42764	− 76	− 36	− 74	84	112	205	− 41	117
−42962	−42604	+ 133	− 395	− 358	417	549	289	− 41	[118]
−42434	−42311	− 14	+ 379	− 123	379	399	92	− 18	[119]
−42264	−42069	− 10	+ 317	− 195	317	372	92	− 32	[120]
−42870	−42695	...	...	− 175	...	...	...	− ...	[121]
−42895	−43015	...	...	+ 120	...	...	...	+ ...	[122]
−43369	−43273	− 12	+ 91	− 96	92	133	98	− 46	123
−43251	−43274	+ 25	+ 32	+ 23	41	47	52	+ 29	124
−42871	−42955	− 94	+ 360	+ 84	378	387	104	+ 13	[125]
−42999	−42541	− 781	+ 259	− 458	823	942	162	− 29	[126]

* + from the horison toward the zenith. − from the horison toward the nadir.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Lati-tude.	Longi-tude.	North Compt. X Ob-served	North Compt. X Calcu-lated	West Compt. Y Ob-served	West Compt. Y Calcu-lated
				° ′	° ′	γ	γ	γ	γ
127	Poronai.........	0.00	1894.73	44 40.0	142 52.9	26033	25888	2817	2776
128	Monbetu........	0.00	1894.74	44 21.7	143 21.0	26088	26007	2745	2693
[129]	Yūbetu	0.00	1894.74	44 14.0	143 37.1	...	26055	...	2648
130	Nogami	0.10	1894.75	44 02.0	143 30.0	26241	26146	2740	2650
131	Ainonai	0.20	1894.75	43 48.7	143 48.2	26261	26234	2671	2593
[132]	Abasiri	0.00	1894.76	44 01.2	144 16.6	26594	26130	2195	2542
133	Syari	0.00	1894.76	43 54.9	144 39.6	26098	26166	2557	2480
134	Rausu...........	0.00	1894.78	44 01.4	145 12.0	26285	26106	2268	2408
135	Sibetu...........	0.00	1894.79	43 39.1	145 08.5	26077	26270	2317	2390
136	Hakodate.......	0.00	1894.50	41 46.5	140 43.5	27317	27231	2759	2813
137	Mori.............	0.00	1894.51	42 07.0	140 34.5	27048	27096	2688	2858
138	Setana...........	0.00	1894.53	42 26.9	139 51.0	27241	26996	2906	2961
139	Kutō	0.00	1894.54	42 13.6	139 49.5	27147	27091	3061	2945
140	Esasi.............	0.00	1894.55	41 52.5	140 09.0	27116	27221	2910	2883
141	Hukuyama...... (in Osima)	0.00	1894.55	41 26.0	140 09.0	27624	27405	2814	2845
142	Siriuti	0.00	1894.56	41 36.3	140 25.5	27331	27319	2645	2831
143	Tiribetu.........	0.00	1894.58	42 20.8	141 00.0	26664	26977	2868	2831
[144]	Tomakomai.....	0.00	1894.58	42 36.5	141 36.0	26820	26837	2395	2783
145	Sarupt...........	0.00	1894.59	42 30.4	142 01.5	26837	26862	2829	2724
146	Osyatinai.......	0.10	1894.60	42 41.2	142 13.5	26792	26777	2744	2714
[147]	Nohuka...	0.00	1894.61	42 19.4	142 48.0	26943	26909	2904	2612

Bracketed number shows that the station is excluded in the equations of condition.

XVI. *(Continued.)*

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z Observed	Upward Compt. Z Calculated	North Compt. ΔX Obs.-Cal.	West Compt. ΔY Obs.-Cal.	Upward Compt. ΔZ Obs.-Cal.	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth N-W-S-E-N	Altitude.*	No.
γ −42276	γ −42189	γ +145	γ +41	γ −87	γ 151	γ 174	16°	−30°	127
−41790	−41778	+81	+52	−12	96	97	33	−7	128
−41601	−41560	...	...	−41	...	...	...	−...	[129]
−41411	−41441	+95	+90	+30	131	134	43	+13	130
−40967	−41137	+27	+78	+170	83	189	71	+64	131
−41376	−41230	+464	−347	−146	579	598	323	−14	[132]
−41172	−41045	−68	+77	−127	103	163	131	−51	133
−41088	−41015	+179	−140	−73	227	239	322	−18	134
−40746	−40708	−193	−73	−38	206	210	201	−10	135
−39987	−40116	+86	−54	+129	102	164	328	+52	136
−40658	−40492	−48	−170	−166	177	242	254	−43	137
−40929	−41050	+245	−55	+121	251	279	347	+26	138
−40620	−40840	+56	+116	+220	129	255	64	+60	139
−40313	−40389	−105	+27	+76	108	132	166	+35	140
−39801	−39953	+219	−31	+152	221	268	352	+35	141
−40076	−40041	+12	−186	−35	186	190	274	−11	142
−40539	−40588	−313	+37	+49	315	319	173	+9	143
−41146	−40658	−17	−388	−488	388	624	267	−51	[144]
−40669	−40444	−25	+105	−225	108	250	104	−64	145
−40773	−40557	+15	+30	−216	34	219	63	−81	146
−40082	−40069	+34	+292	−13	294	294	83	−3	[147]

* + from the horison toward the zenith. − from the horizon toward the nadir.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	North Compt. X Observed	North Compt. X Calculated	West Campt. Y Observed	West Campt. Y Calculated
[148]	Urakawa........	0.00	1894.62	42° 08.8′	142° 48.0′	27038 γ	26984 γ	2885 γ	2598 γ
149	Syoya	0.00	1894.63	42 01.5	143 16.5	27008	27020	2650	2526
150	Moyoro	0.00	1894.65	42 16.4	143 18.0	26996	26914	2509	2543
151	Tyūrui...........	0.00	1894.65	42 33.2	143 18.0	26841	26794	2519	2566
152	Memuro	0.08	1894.66	42 55.0	143 00.0	26672	26649	2710	2634
153	Otasoi...........	0.27	1894.67	43 04.0	142 49.5	26616	26590	2839	2668
154	Syorusam........	0.05	1894.69	42 54.3	143 22.5	26616	26641	2538	2583
155	Asyoro	0.20	1894.70	43 17.5	143 37.5	26496	26467	2645	2580
[156]	Ōtu	0.00	1894.71	42 40.5	143 39.0	26897	26732	2819	2528
157	Siranuka	0.00	1894.72	42 56.3	144 06.0	26565	26605	2361	2487
[158]	Sibetya..........	0.05	1894.73	43 17.7	144 35.5	26351	26438	2635	2444
[159]	Atusanupuri...	0.46	1894.74	43 37.2	144 25.5	26453	26301	2447	2492
[160]	Sinryū	0.00	1894.75	43 03.0	144 50.5	26472	26539	2585	2390
[161]	Nemuro	0.00	1894.76	43 20.4	145 36.0	25519	26398	1821	2298
162	Sendai	0.03	1894.49 1894.82 1895.49 1895.69	38 15.8	140 52.0	28505	28640	2547	2465
163	Kogota	0.00	1895.49	38 31.5	141 04.0	28705	28528	2633	2470
164	Gamon	0.01	1895.50	38 44.0	141 06.0	28062	28445	2565	2488
165	Midzusawa	0.02	1895.51	39 07.6	141 05.0	28276	28291	2576	2528
166	Hanamaki......	0.06	1895.51	39 25.0	141 06.5	28065	28176	2697	2551
167	Morioka.........	0.13	1895.51	39 42.5	141 07.5	28135	28058	2730	2582
[168]	Nakayama......	0.43	1895.52	40 03.3	141 16.5	27937	27911	2842	2598

Bracketed number shows that the station is excluded in the equations of condition.

XVI. *(Continued.)*

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z		North Compt. ΔX	West Compt. ΔY	Upward Compt. ΔZ	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth N-W-S-E-N	Altitude.*	No.
Observed	Calculated	Obs.-Cal.	Obs.-Cal.	Obs.-Cal.					
−40084″	−39907″	+ 54″	+ 287″	− 177″	292″	341″	79°	− 31°	[148]
−39711	−39684	− 12	+ 124	− 27	125	127	96	− 12	149
−40029	−39904	+ 82	− 34	− 125	89	153	338	− 55	150
−40288	−40157	+ 47	− 47	− 131	66	147	315	− 63	151
−40597	−40564	+ 23	+ 76	− 33	79	86	73	− 23	152
−40713	−40746	+ 26	+ 171	+ 33	173	176	81	+ 11	153
−40328	−40457	− 25	− 45	+ 129	51	139	241	+ 68	154
−40545	−40746	+ 29	+ 65	+ 201	71	213	66	+ 71	155
−40517	−40186	+ 165	+ 291	− 331	335	471	60	− 45	[156]
−40550	−40314	− 40	− 126	− 236	132	271	252	− 61	157
−40234	−40520	− 87	+ 191	+ 286	210	355	115	+ 54	[158]
−40582	−40843	+ 152	− 45	+ 261	159	305	344	+ 59	[159]
−41409	−40250	− 67	+ 195	− 1159	206	1177	109	− 80	[160]
−40153	−40347	− 879	− 477	+ 194	1000	1019	209	+ 11	[161]
−36571	−36688	− 135	+ 82	+ 117	158	197	149	+ 37	162
−37100	−36897	+ 177	+ 163	− 203	241	315	43	− 40	163
−37008	−37089	− 383	+ 77	+ 81	391	399	169	+ 12	164
−37280	−37469	− 15	+ 48	+ 189	50	196	107	+ 75	165
−37422	−37744	− 111	+ 146	+ 322	183	371	127	+ 60	166
−37781	−38019	+ 77	+ 148	+ 238	167	291	63	+ 55	167
−38018	−38314	+ 26	+ 244	+ 296	245	384	84	+ 50	[168]

* + from the horison toward the zenith. − from the horison toward the nadir.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	North Compt. X Observed	North Compt. X Calculated	West Compt. Y Observed	West Compt. Y Calculated
				° ′	° ′	γ	γ	γ	γ
[169]	Hatinohe.........	0.04	1895.60	40 31.0	141 31.3	...	27713	...	2613
170	Kominatotaira. (in Sameura)	0.00	1895.53	40 32.3	141 34.3	27573	27702	2361	2605
[171]	Ono	0.20	1895.53	40 15.2	141 37.8	28044	27816	2123	2576
172	Kuzi, Rikutyū..	0.00	1895.54	40 11.6	141 47.8	27926	27833	2465	2551
[173]	Akka	0.10	1895.54	39 59.3	141 44.0	...	27919	...	2539
174	Anazawa...... ..	0.35	1895.55	39 52.5	141 41.3	28263	27967	2292	2534
[175]	Iwaizumi	0.08	1895.55	39 51.6	141 47.6	...	27968	...	2520
[176]	Miyako	0.00	1895.55	39 38.2	141 58.3	28041	28050	2758	2477
[177]	Oguni, Rikutyū	0.10	1895.56	39 31.3	141 41.0	...	28108	...	2500
178	Tōno	0.27	1895.56	39 18.2	141 31.2	28102	28202	2629	2498
179	Kamaisi	0.00	1895.57	39 16.1	141 54.2	28248	28200	2269	2450
180	Kesennuma	0.00	1895.58	38 53.5	141 35.3	28302	28361	2458	2449
181	Isinomaki	0.00	1895.59	38 25.2	141 18.0	28633	28559	2490	2433
[182]	Ikusazawa	0.40	1895.60	38 51.1	140 37.7	...	28422	...	2551
183	Simoinnai	0.18	1895.61	39 02.3	140 25.8	28060	28359	2649	2590
184	Yokote	0.06	1895.61	39 19.0	140 31.5	28296	28244	2679	2609
[185]	Kakudate	0.04	1895.61	39 36.6	140 33.0	28145	28126	2276	2635
[186]	Kariwano	0.03	1895.61	39 32.2	140 21.6	...	28165	...	2647
187	Akita	0.00	1895.62	39 42.6	140 07.5	28174	28108	2646	2688
188	Honzyō	0.00	1895.62	39 22.0	140 01.5	28150	28251	2576	2665
189	Nōsiro	0.00	1895.63	40 11.5	140 02.5	27788	27919	2830	2735

Bracketed number shows that the station is excluded in the equations of condition.

XVI. *(Continued.)*

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z Observed	Upward Compt. Z Calculated	North Compt. ΔX Obs.-Cal.	West Compt. ΔY Obs.-Cal.	Upward Compt. ΔZ Obs.-Cal.	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth N-W-S-E-N	Altitude.*	No.
γ	γ	γ	γ	γ	γ	γ	°	°	
−38475	−38695	...	...	+ 220	...	...	...	+ ...	[169]
−38536	−38703	− 129	− 244	+ 167	276	323	242	+ 31	170
−38653	−38421	+ 228	− 453	− 232	507	558	297	− 25	[171]
−38624	−38325	+ 93	− 86	− 299	127	325	317	− 67	172
−38097	−38145	...	...	+ 48	...	...	...	+ ...	[173]
−37919	−38049	+ 96	− 242	+ 130	260	291	292	+ 27	174
...	−38010	...	...	...	...	...	...	...	[175]
−37948	−37760	− 9	+ 281	− 188	281	338	92	− 34	[176]
−37350	−37714	...	...	+ 364	...	...	...	+ ...	[177]
−37663	−37541	− 100	+ 131	− 122	165	205	127	− 37	178
−37288	−37427	+ 48	− 241	+ 139	246	282	281	+ 29	179
−36838	−37135	− 59	+ 9	+ 297	60	303	171	+ 79	180
−36480	−36745	+ 74	+ 57	+ 265	93	281	38	+ 71	181
−37758	−37309	...	...	− 449	...	...	...	− ...	[182]
−37342	−37537	− 299	+ 59	+ 195	305	362	169	+ 33	183
−37753	−37815	+ 52	+ 70	+ 62	87	107	53	+ 35	184
−37936	−38063	+ 19	− 359	+ 127	360	381	273	+ 19	[185]
−38120	−38040	...	...	− 80	...	...	...	− ...	[186]
−38332	−38270	+ 66	− 42	− 62	78	100	328	− 38	187
−37927	−37959	− 101	− 89	+ 32	135	138	221	+ 13	188
−38828	−38763	− 131	+ 95	− 65	162	174	144	− 22	189

* + from the horison toward the zenith. − from the horison toward the nadir.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Lati-tude.	Longi-tude.	North Compt. X Ob-served	North Compt. X Calcu-lated	West Compt. Y Ob-served	West Compt. Y Calcu-lated
				° ′	° ′	γ	γ	γ	γ
190	Ōdate	0.08	1895.64	40 16.0	140 32.5	27797	27862	2723	2698
191	Hirosaki	0.06	1895.64	40 36.4	140 28.5	27839	27727	2658	2739
192	Adigasawa	0.00	1895.64	40 36.8	140 13.3	27630	27670	2684	2780
193	Ippongi	0.00	1895.65	41 10.2	140 31.3	27390	27494	2717	2783
[194]	Ōma	0.00	1895.66	41 30.0	140 54.5	26923	27337	2993	2770
[195]	Tanabu	0.00	1895.66	41 16.1	141 14.0	27379	27417	2977	2713
196	Makado	0.10	1895.67	40 52.7	141 09.0	27546	27582	2827	2688
197	Aomori	0.00	1895.67	40 49.4	140 43.5	27585	27625	2642	2730
198	Hukaya	0.04	1895.49	36 11.8	139 16.5	29487	29504	2360	2389
199	Sakura	0.03	1895.50	35 43.3	140 13.5	29651	29627	2257	2244
200	Sawara	0.01	1895.51	35 52.5	140 30.0	29574	29558	2276	2235
201	Tyōsi	0.00	1895.51	35 44.0	140 51.0	29675	29593	2191	2182
202	Itinomiya	0.00	1895.52	35 22.4	140 22.5	29680	29746	2203	2187
203	Maebara	0.00	1895.53	35 05.8	140 06.0	29769	29860	2178	2180
204	Kisaratu	0.00	1895.53	35 23.2	139 55.5	29737	29764	2239	2233
205	Mito	0.01	1895.55	36 21.9	140 30.0	29383	29377	2245	2292
206	Ueda	0.00	1895.56	36 53.5	140 48.0	29167	29167	2293	2322
207	Namie	0.00	1895.56	37 28.3	141 00.0	29243	28938	2229	2365
[208]	Watari	0.02	1895.57	38 02.2	140 49.5	28935	28729	2182	2444
209	Hukusima	0.07	1895.57	37 45.0	140 28.5	29061	28857	2526	2450
210	Yonezawa	0.25	1895.59	37 55.2	140 05.0	28943	28812	2457	2509

Bracketed number shows that the station is excluded in the equations of condition.

XVI. (*Continued.*)

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z Observed	Upward Compt. Z Calculated	North Compt. ΔX Obs.-Cal.	West Compt. ΔY Obs.-Cal.	Upward Compt. ΔZ Obs.-Cal.	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth N-W-S-E-N	Altitude.*	No.
γ	γ	γ	γ	γ	γ	γ			
−38516	−38703	− 65	+ 25	+ 187	70	200	159°	+ 70°	190
−38852	−39054	+ 112	− 81	+ 202	138	245	324	+ 56	191
−39341	−39293	− 40	− 96	− 48	104	115	247	− 25	192
−39749	−39588	− 104	− 66	− 161	123	203	212	− 53	193
−39372	−39798	− 414	+ 223	+ 426	470	635	152	+ 42	[194]
−39554	−39487	− 38	+ 264	− 67	267	275	98	− 14	[195]
−39141	−39135	− 36	+ 139	− 6	144	144	105	− 2	196
−39502	−39195	− 40	− 88	− 307	97	322	246	− 72	197
−35116	−35002	− 17	− 29	− 114	34	119	240	− 73	198
−34372	−34349	+ 24	+ 13	− 23	27	36	28	− 40	199
−34458	−34448	+ 16	+ 41	− 10	44	45	69	− 13	200
−34144	−34252	+ 82	+ 9	+ 108	82	136	6	+ 53	201
−33921	−33984	− 66	+ 16	+ 63	68	93	166	+ 43	202
−33521	−33763	− 91	− 2	+ 242	91	259	181	+ 69	203
−33895	−34078	− 27	+ 6	+ 183	28	185	167	+ 81	204
−34913	−34924	+ 6	− 47	+ 11	47	49	277	+ 13	205
−35376	−35376	0	− 29	0	29	29	270	0	206
−36173	−35897	+ 305	− 136	− 276	334	433	336	− 40	207
−36503	−36476	+ 206	− 262	− 27	333	334	308	− 5	[208]
−36092	−36274	+ 204	+ 76	+ 182	218	284	20	+ 40	209
−36402	−36524	+ 131	− 52	+ 122	141	186	337	+ 41	210

* + from the horison toward the zenith. − from the horison toward the nadir.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	North Compt. X Observed	North Compt. X Calculated	West Compt. Y Observed	West Compt. Y Calculated
				° ′	° ′	γ	γ	γ	γ
211	Yamagata	0.16	1895.59	38 16.5	140 21.0	28837	28661	2388	2519
212	Sinzyō	0.10	1895.60	38 46.2	140 18.0	28606	28471	2583	2576
213	Sakata	0.00	1895.61	38 54.5	139 48.0	28530	28444	2596	2640
[214]	Atumi	0.00	1895.61	38 37.1	139 35.0	...	28569	...	2631
215	Murakami	0.00	1895.61	38 12.0	139 28.5	28813	28738	2613	2598
216	Oguni, Uzen....	0.10	1895.62	38 04.9	139 46.5	28848	28767	2520	2556
217	Tugawa	0.08	1895.63	37 39.5	139 24.0	28929	28950	2603	2546
218	Wakamatu	0.22	1895.64	37 29.5	139 57.0	28917	28983	2431	2475
219	Tazima...........	0.56	1895.64	37 11.5	139 46.5	28973	29105	2378	2459
220	Tadami	0.37	1895.65	37 20.5	139 19.0	29120	29075	2383	2517
221	Nikkō...........	0.61	1895.66	36 44.3	139 37.5	29374	29284	2279	2420
222	Sukagawa........	0.25	1895.66	37 15.5	140 21.0	29040	29050	2471	2410
223	Nisi-nasuno. ...	0.20	1895.66	36 53.0	139 58.5	29289	29210	2552	2404
224	Utunomiya......	0.12	1895.67	36 33.4	139 54.0	29444	29337	2279	2374
225	Koga	0.02	1895.67	36 11.7	139 41.8	29364	29481	2308	2351
226	Hatiman, Ōmi..	0.05	1896.50	35 07.8	136 04.3	30089	30115	2483	2486
227	Kyōto	0.04	1896.51	35 01.2	135 47.8	30152	30176	2507	2485
228	Sasayama........	0.25	1896.52	35 04.2	135 14.0	30133	30207	2534	2519
229	Miyatu	0.00	1896.53	35 31.6	135 13.0	30052	30045	2545	2579
230	Obama...........	0.00	1896.53	35 30.8	135 44.5	29962	30005	2587	2553
231	Sakai	0.00	1896.55	34 34.9	135 28.0	30293	30359	2388	2444

Bracketed number shows that the station is excluded in the equations of condition.

XVI. *(Continued.)*

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z Observed	Upward Compt. Z Calculated	North Compt. ΔX Obs.-Cal.	West Compt. ΔY Obs.-Cal.	Upward Compt. ΔZ Obs.-Cal.	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth N-W-S-E-N	Altitude.*	No.
γ	γ	γ	γ	γ	γ	γ	°	°	
−36966	−26812	+ 176	− 131	− 154	219	268	323	− 35	211
−37383	−37307	+ 135	+ 7	− 76	135	155	3	− 29	212
−37674	−37564	+ 86	− 44	− 110	97	146	333	− 49	213
−37574	−37332	...	...	− 242	...	...	...	− ...	[214]
−37038	−36944	+ 75	+ 15	− 94	76	121	11	− 51	215
−36747	−36755	+ 81	− 36	+ 8	89	89	336	+ 5	216
−36338	−36425	− 21	+ 57	+ 87	61	106	110	+ 55	217
−36187	−36135	− 66	− 44	− 52	79	95	214	− 33	218
−36116	−35878	− 132	− 81	− 238	155	284	212	− 57	219
−36190	−36129	+ 45	− 134	− 61	141	154	289	− 23	220
−35487	−35464	+ 90	− 141	− 23	167	169	303	− 8	221
−35697	−35833	− 10	+ 61	+ 136	62	149	99	+ 65	222
−35631	−35531	+ 79	+ 148	− 100	168	195	62	− 31	223
−35384	−35229	+ 107	− 95	− 155	143	211	318	− 47	224
−34863	−34915	− 117	− 43	+ 52	125	135	200	+ 23	225
−34584	−34667	− 26	− 3	+ 83	26	87	187	+ 73	226
−34555	−34623	− 24	+ 22	+ 68	33	75	137	+ 64	227
−34731	−34830	− 74	+ 15	+ 99	76	125	169	+ 53	228
−35274	−35321	+ 7	− 34	+ 47	35	58	282	+ 53	229
−35047	−35158	− 43	+ 34	+ 111	55	124	142	+ 64	230
−34486	−34247	− 66	− 56	− 239	87	254	220	− 70	231

* + from the horisón toward the zenith. − from the horison toward the nadir.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	North Compt. X Observed	North Compt. X Calculated	West Compt. Y Observed	West Compt. Y Calculated
				° ′	° ′	γ	γ	γ	γ
232	Ikuno............	0.25	1896.55	35 10.3	134 48.0	30057	30210	2544	2551
233	Toyooka........	0.00	1896.56	35 32.6	134 49.3	30072	30076	2630	2599
234	Tottori...........	0.00	1896.56	35 29.7	134 14.8	30033	30147	2666	2615
235	Hasizu	0.00	1896.57	35 30.4	133 54.0	30088	30177	2641	2628
236	Tuyama	0.09	1896.58	35 04.0	134 01.3	30262	30321	2527	2565
237	Okayama	0.00	1896.58	34 40.4	133 55.8	30442	30469	2477	2514
238	Akō..............	0.00	1896.59	34 45.4	134 23.8	30388	30395	2473	2510
239	Akasi	0.00	1896.59	34 39.2	135 00.0	30353	30375	2440	2473
240	Nara	0.06	1896.60	34 40.9	135 51.0	30158	30291	2352	2438
241	Kamiiti.........	0.15	1896.61	34 23.4	135 52.0	30356	30392	2362	2398
242	Myōzi...........	0.00	1896.61	34 17.0	135 32.3	30414	30457	2362	2400
243	Wakayama	0.00	1896.61	34 13.6	135 11.3	30438	30506	2387	2467
244	Sumoto..........	0.00	1896.62	34 20.7	134 53.5	30456	30492	2403	2436
245	Minabe..........	0.00	1896.62	33 45.6	135 20.3	30657	30654	2284	2336
[246]	Tikatuyu	0.48	1896.63	33 48.9	135 36.9	...	30612	...	2331
247	Hongū	0.10	1896.64	33 49.1	135 47.5	30542	30596	2319	2324
248	Kusimoto.......	0.00	1896.64	33 28.2	135 47.0	30628	30716	2235	2275
249	Arima	0.00	1896.65	33 52.2	136 05.5	30467	30553	2272	2316
250	Nagasima.......	0.00	1896.66	34 12.2	136 20.5	30317	30419	2314	2348
251	Matusaka.......	0.00	1896.67	34 34.3	136 32.5	30230	30274	2324	2386
252	Mihara..........	0.00	1896.50	34 24.3	133 05.3	30765	30647	2504	2497

Bracketed number shows that the station is excluded in the equations of condition.

XVI. *(Continued.)*

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z Observed	Upward Compt. Z Calculated	North Compt. ΔX Obs.-Cal.	West Compt. ΔY Obs.-Cal.	Upward Compt. ΔZ Obs.-Cal.	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth N-W-S-E-N	Altitude.*	No.
−34888	−35060	− 153	− 7	+ 172	153	230	183	+ 48	232
−35351	−35454	− 4	+ 31	+ 103	31	108	97	+ 73	233
−35622	−35575	− 114	+ 51	− 47	125	133	156	− 21	234
−35765	−35697	− 89	+ 13	− 68	90	113	172	− 37	235
−35067	−35176	− 59	− 38	+ 109	70	130	213	+ 57	236
−34713	−34774	− 27	− 37	+ 61	46	76	234	+ 53	237
−34702	−34729	− 7	− 37	+ 27	38	46	259	+ 35	238
−34399	−34448	− 22	− 33	+ 49	40	63	236	+ 51	239
−34379	−34255	− 133	− 86	− 124	158	201	213	− 38	240
−33883	−33944	− 36	− 36	+ 61	51	79	225	+ 50	241
−33807	−33913	− 43	− 38	+ 106	57	121	221	+ 62	242
−33920	−33942	− 68	− 20	+ 22	71	74	196	+ 17	243
−34102	−34148	− 36	− 33	+ 46	49	67	222	+ 43	244
−33436	−33412	+ 3	− 52	− 24	52	57	273	− 25	245
−33298	−33402	...	...	+ 104	...	...	...	...	[246]
−33300	−33363	− 54	− 5	+ 63	54	83	185	+ 49	247
−32860	−33000	− 88	− 40	+ 140	97	170	204	+ 55	248
−33294	−33345	− 86	− 44	+ 51	97	109	207	+ 28	249
−33541	−33633	− 102	− 34	+ 92	108	142	198	+ 40	250
+33874	−33969	− 41	− 62	+ 95	76	122	235	+ 51	251
+34794	−34735	+ 118	+ 7	− 59	118	132	3	− 27	252

* + from the horison toward the zenith. − from the horison toward the nadir.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	North Compt. X Observed	North Compt. X Calculated	West Compt. Y Observed	West Compt. Y Calculated
				° ′	° ′	γ	γ	γ	γ
253	Hirosima	0.00	1896.50	34 23.0	132 27.0	30825	30723	2455	2505
254	Sitata	0.00	1896.51	33 54.3	132 19.5	30912	30901	2450	2437
255	Murodzumi	0.00	1896.52	33 55.7	131 58.0	30949	30933	2464	2444
256	Yamaguti	0.04	1896.52	34 11.7	131 29.0	30932	30897	2452	2485
257	Tuwano	0.16	1896.53	34 28.0	131 46.5	30882	30770	2524	2523
258	Hagi..............	0.01	1896.54	34 25.1	131 22.5	31047	30833	2473	2518
259	Awano	0.00	1896.54	34 22.0	130 58.0	31010	30900	2480	2510
[260]	Hamada	0.00	1896.56	34 53.7	132 05.8	30252	30584	2485	2583
261	Itiki, Iwami....	0.28	1896.56	34 49.5	132 25.0	30631	30573	2518	2568
262	Miyosi	0.15	1896.57	34 48.7	132 52.0	30445	30529	2636	2559
263	Ai	0.32	1896.58	35 08.0	132 57.5	30615	30406	2634	2602
[264]	Imaiti	0.00	1896.58	35 21.0	132 44.5	30153	30353	2553	2636
265	Matue	0.00	1896.59	35 28.4	133 04.0	30103	30275	2563	2646
266	Kurosaka	0.09	1896.59	35 11.0	133 23.8	30382	30343	2594	2599
[267]	Tōzyō	0.29	1896.60	34 53.5	133 18.0	30822	30456	2531	2561
268	Hukuyama ..... (in Bingo)	0.00	1896.61	34 28.7	133 22.5	30648	30592	2508	2502
[269]	Hamahata.......	0.08	1896.61	34 48.2	133 37.8	...	30452	...	2540
270	Takahasi	0.08	1896.61	34 48.8	133 37.5	30564	30450	2543	2542
271	Tokusima	0.00	1896.62	34 04.0	134 35.0	30707	30616	2411	2408
272	Wakimati	0.05	1896.63	34 05.0	134 11.8	30731	30647	2422	2424
273	Ōsato.............	0.00	1896.64	33 35.0	134 23.0	30869	30801	2363	2347

Bracketed number shows that the station is excluded in the equations of condition.

XVI. *(Continued.)*

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z Observed	Upward Compt. Z Calculated	North Compt. ΔX Obs.-Cal.	West Compt. ΔY Obs.-Cal.	Upward Compt. ΔZ Obs.-Cal.	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth N-W-S-E-N	Altitude.*	No.
γ	γ	γ	γ	γ	γ	γ	°	°	
−34945	−34912	+ 102	− 50	− 33	114	118	334	− 16	253
−34456	−34418	+ 11	+ 13	− 38	17	42	50	− 66	254
−34562	−34558	+ 16	+ 20	− 4	26	26	51	− 9	255
−34950	−35022	+ 35	− 33	+ 72	48	87	317	+ 56	256
−35357	−35231	+ 112	+ 1	− 126	112	169	1	− 48	257
−35357	−35315	+ 214	− 45	− 42	219	223	348	− 11	258
−35376	−35399	+ 110	− 30	+ 23	114	116	345	+ 11	259
−35864	−35608	− 332	− 98	− 256	346	431	196	− 37	[260]
−35765	−35421	+ 58	− 50	− 344	77	352	319	− 77	261
−35384	−35257	− 84	+ 77	− 127	114	171	137	− 48	262
−36130	−35586	+ 209	+ 32	− 544	211	584	9	− 69	263
−36164	−35902	− 200	− 83	− 262	217	340	203	− 50	[264]
−35861	−35932	− 172	− 83	+ 71	191	204	206	+ 20	265
−35739	−35499	+ 39	− 5	− 240	39	243	353	− 81	266
−35436	−35209	+ 366	− 30	− 227	367	432	355	− 32	[267]
−34806	−34727	+ 56	+ 6	− 79	56	97	6	− 55	268
...	−35007	...	...	...	...	...	...	...	[269]
−35058	−35021	+ 114	+ 1	− 37	114	120	1	− 18	270
−34002	−33933	+ 91	+ 3	− 69	91	114	2	− 37	271
−34084	−34057	+ 84	− 2	− 27	84	88	359	− 18	272
−33537	−33467	+ 68	+ 16	− 70	70	99	13	− 45	273

* + from the horison toward the zenith. − from the horison toward the nadir.

TAELE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Lati-tude.	Longi-tude.	North Compt. X Ob-served	North Compt. X Calcu-lated	West Compt. Y Ob-served	West Compt. Y Calcu-lated
				° ′	° ′	γ	γ	γ	γ
274	Nawari	0.00	1896.65	33 26.0	134 03.0	30931	30883	2340	2336
275	Kōti	0.00	1896.65	33 32.8	133 33.3	30978	30894	2380	2365
276	Ōtoti	0.35	1896.66	33 41.0	133 53.0	30879	30815	2384	2376
277	Susaki	0.00	1896.67	33 24.0	133 17.8	30974	30969	2354	2349
278	Nakamura	0.00	1896.67	32 57.7	132 55.0	31202	31155	2289	2290
279	Uwazima........	0.00	1896.69	33 13.2	132 34.5	31119	31105	2318	2333
280	Wakamiya......	0.01	1896.69	33 32.0	132 34.5	31053	31000	2355	2380
[281]	Yahatahama ...	0.00	1896.70	33 27.4	132 25.7	...	31041	...	2369
282	Saganoseki......	0.00	1896.70	33 14.5	131 53.3	31298	31173	2321	2339
283	Saiki.............	0.00	1896.71	32 56.9	131 52.5	31215	31272	2269	2296
284	Oita..............	0.00	1896.72	33 15.0	131 36.0	30992	31203	2319	2343
285	Matuyama	0.00	1896.72	33 52.0	132 45.0	30901	30868	2413	2427
286	Kuzu, Iyo.......	0.33	1896.73	33 33.8	132 58.5	30977	30947	2372	2379
287	Kuma „ „	0.53	1896.73	33 39.4	132 53.5	30915	30924	2403	2393
288	Imabaru	0.00	1896.74	34 04.0	133 01.5	30827	30771	2451	2451
289	Kawanoe.........	0.00	1896.75	34 02.0	133 35.0	30804	30725	2427	2430
290	Marugame.......	0.00	1896.75	34 16.9	133 49.0	30766	30615	2430	2463
291	Takamatu.......	0.00	1896.75	34 21.0	134 02.8	30683	30570	2482	2466
292	Tonosyō	0.00	1896.76	34 29.0	134 10.5	30542	30510	2481	2480
293	Zaikōzi..........	0.00	1896.52	32 24.2	131 36.8	31508	31481	2214	2212
294	Miyazaki	0.00	1896.52	31 55.2	131 25.3	31660	31659	2205	2135

Bracketed number shows that the station is excluded in the equations of condition.

XVI. *(Continued.)*

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z Observed	Upward Compt. Z Calculated	North Compt. ΔX Obs.-Cal.	West Compt. ΔY Obs.-Cal.	Upward Compt. ΔZ Obs.-Cal.	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth N-W-S-E-N	Altitude.*	No.
−33443	−33393	+ 48	+ 4	− 50	48	69	5°	− 46°	274
−33657	−33656	+ 84	+ 15	− 1	85	85	10	− 1	275
−33846	−33712	+ 64	+ 8	− 134	65	149	7	− 64	276
−33647	−33567	+ 5	+ 5	− 80	7	80	45	− 85	277
−33293	−33195	+ 47	− 1	− 98	47	109	359	− 64	278
−33612	−33576	+ 14	− 15	− 36	21	41	313	− 60	279
−33927	−33927	+ 53	− 25	0	59	59	335	0	280
−34054	−33884	...	...	− 170	...	...	...	− ...	[281]
−33850	−33810	+ 125	− 18	− 40	126	132	352	− 18	282
−33527	−33484	− 57	− 27	− 43	63	76	205	− 34	283
−33740	−33909	− 211	− 24	+ 169	212	271	186	+ 39	284
−34233	−34241	+ 33	− 14	+ 8	36	37	337	+ 13	285
−33934	−33838	+ 30	− 7	− 96	31	101	347	− 72	286
−33958	−33967	− 9	+ 10	+ 9	13	16	132	+ 35	287
−34432	−34380	+ 56	0	− 52	56	76	0	− 43	288
−34226	−34178	+ 79	− 3	− 48	79	92	358	− 31	289
−34480	−34381	+ 151	− 33	− 99	155	184	348	− 33	290
−34482	−34388	+ 113	+ 16	− 94	114	148	8	− 40	291
−34514	−34496	+ 32	+ 1	− 18	32	37	2	− 29	292
−32980	−32953	+ 27	+ 2	− 27	27	38	4	− 45	293
−32483	−32466	+ 1	+ 70	− 17	70	72	89	− 14	294

* + from the horison toward the zenith. — from the horison toward the nadir.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	North Compt. X Observed	North Compt. X Calculated	West Compt. Y Observed	West Compt. Y Calculated
				° ′	° ′	γ	γ	γ	γ
295	Miyakonozyō...	0.14	1896.53	31 42.8	131 03.0	31759	31769	2043	2098
296	Nakamati	0.00	1896.53	31 26.2	131 11.3	31846	31841	2041	2054
297	Kōyama	0.10	1896.54	31 20.5	130 55.5	31969	31901	2072	2036
298	Kagosima	0.00	1896.54	31 35.4	130 32.5	31784	31869	2008	2071
[299]	Itiki, Satuma...	0.00	1896.55	31 41.6	130 16.0	32242	31870	2231	2083
300	Makurazaki	0.00	1896.55	31 17.0	130 16.5	31893	31909	2089	2015
[301]	Kaseda	0.00	1896.56	31 25.0	130 19.1	...	31951	...	2038
[302]	Yokogawa	0.18	1896.56	31 54.2	130 41.5	31649	31751	2196	2125
303	Hitoyosi	0.12	1896.57	32 12.1	130 46.5	31618	31644	2298	2174
304	Yunomae.........	0.66	1896.57	32 15.8	130 59.0	31611	31600	2218	2187
305	Yatusiro	0.00	1896.58	32 29.7	130 36.0	31635	31571	2221	2219
306	Minamata	0.00	1896.58	32 12.4	130 23.5	31986	31690	2221	2169
307	Simabara.........	0.00	1896.59	32 46.1	130 22.5	31304	31509	2255	2260
[308]	Nagasaki	0.00	1896.59	32 45.0	129 52.5	31769	31578	2452	2247
309	Sasebo	0.00	1896.60	33 10.5	129 44.3	31376	31456	2295	2312
310	Matiyamaguti ..	0.00	1896.61	32 27.5	130 10.8	31625	31634	2170	2207
311	Kumamoto	0.02	1896.61	32 48.0	130 44.0	31282	31455	2277	2269
312	Miyadi	0.51	1896.62	32 55.8	131 07.4	31418	31365	2122	2292
[313]	Mamibara	0.54	1896.62	32 39.2	131 09.5	31399	31452	2063	2250
314	Yanagawa.......	0.00	1896.63	33 09.6	130 24.8	31341	31375	2298	2321
315	Hukuoka.........	0.00	1896.63	33 35.2	130 23.8	31114	31235	2390	2388

Bracketed number shows that the station is excluded in the equations of condition.

XVI.

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z Observed	Upward Compt. Z Calculated	North Compt. ΔX Obs.-Cal.	West Compt. ΔY Obs.-Cal.	Upward Compt. ΔZ Obs.-Cal.	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth N-W-S-E-N	Altitude.*	No.
γ	γ	γ	γ	γ	γ	γ			
−32267	−32344	− 10	− 55	+ 77	56	95	260°	+ 54°	295
−32021	−31995	+ 5	− 13	− 26	14	30	291	− 62	296
−31909	−31962	+ 68	+ 36	+ 53	77	93	28	+ 35	297
−32374	−32357	− 85	− 63	− 17	106	107	217	− 9	298
−32486	−32560	+ 370	+ 148	+ 74	399	405	22	+ 11	[299]
−32198	−32090	− 106	+ 74	− 108	129	168	145	− 40	300
−32274	−32228	...	...	− 46	...	...	...	− ...	[301]
−31893	−32666	− 102	+ 71	+ 773	124	783	145	+ 81	[302]
−32837	−32980	− 26	+ 124	+ 143	127	191	102	+ 48	303
−32832	−32987	+ 11	+ 31	+ 155	33	158	70	+ 78	304
−33442	−33370	+ 64	+ 2	− 72	64	96	2	− 48	305
−33318	−33108	+ 296	+ 52	− 210	301	367	10	− 35	306
−33564	−33757	− 205	− 5	+ 193	205	282	181	+ 43	307
−34521	−33905	+ 191	+ 205	− 616	280	677	47	− 66	[308]
−34351	−34449	− 80	− 17	+ 98	82	128	192	+ 50	309
−33360	−33463	− 9	− 37	+ 103	38	110	256	+ 70	310
−33467	−33676	− 173	+ 8	+ 209	173	271	177	+ 50	311
−33837	−33698	+ 53	− 170	− 139	178	226	287	− 38	312
−34181	−33386	− 53	− 187	− 795	194	818	254	− 76	[313]
−34145	−34196	− 34	− 23	+ 51	41	65	214	+ 51	314
−34678	−34698	− 121	+ 2	+ 20	121	123	179	+ 9	315

* + from the horison toward the zenith. − from the horison toward the nadir.

TABLE

Observed and Calculated Values of Magnetic Elements

No.	Station.	Height in km.	Year.	Latitude.	Longitude.	North Compt. X Observed	North Compt. X Calculated	West Compt. Y Observed	West Compt. Y Calculated
316	Kokura..........	0.00	1896.64	33° 53'.3	130° 53'.5	31075γ	31072γ	2574γ	2438γ
317	Nakatu	0.00	1896.64	33 36.5	131 11.3	31047	31131	2416	2397
318	Nakamatama...	0.00	1896.65	33 36.0	131 30.0	31091	31098	2413	2397
319	Kuma, Bungo...	0.08	1896.65	33 18.5	130 57.0	31181	31260	2502	2350
320	Karatu..........	0.00	1896.66	33 26.5	129 59.5	31201	31334	2353	2359

Bracketed number shows that the station is excluded in the equations of condition.

XVI. *(Continued.)*

X, Y, Z, and Intensity and Direction of Disturbing Forces.

Upward Compt. Z		North Compt. ΔX	West Compt. ΔY	Upward Compt. ΔZ	$\sqrt{\Delta X^2+\Delta Y^2}$	$\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$	Azimuth N-W-S-E-N	Altitude.*	No.
Observed	Calculated	Obs.-Cal.	Obs.-Cal.	Obs.-Cal.					
−34958 γ	−34874 γ	+ 3 γ	+ 136 γ	− 84 γ	136 γ	160 γ	89°	− 32°	316
−34555	−34451	− 84	+ 19	− 104	86	135	167	− 50	317
−34456	−34338	− 7	+ 16	− 118	17	119	114	− 82	318
−33531	−34186	− 79	+ 152	+ 655	171	677	117	+ 75	319
−34633	−34673	− 133	− 6	+ 40	133	139	183	+ 17	320

* + from the horison toward the zenith. − from the horison toward the nadir.

TABLE XVII.

Alphabetical List of Stations.

Stations.	No.
A	
Abasiri	[132]
Abuta	99
Adigasawa	192
Ai	263
Aikawa	30
Ainonai	131
Akasi	239
Akita	187
Akka	[173]
Akō	238
Anazawa	174
Aomori	197
Arima	249
Asahikawa	111
Asama	[34]
Asyoro	155
Atami	[40]
Atumi	[214]
Atusampuri	[159]
Awano	250
E	
Ebisu	28
Esasi, Kitami	[126]
Esasi, Osima	140
G	
Gamon	164
Gero	85
Gihu	78
H	
Hagi	258
Hakodate	136
Hamada	[260]
Hamahata	[269]
Hanamaki	166
Hasizu	235
Hatiman, Mino	86
Hatiman, Ōmi	226
Hatinohe	[169]
Hatiōzi	2
Hiromibara	[53]...[55]
Hirosaki	191
Hirosima	253
Hitoana	[59]...[61]
Hitoyosi	303
Hongū	247
Honzyō	188
Hudisawa	43
Hukaya	198
Hukuoka	315
Hukusima, Sinano	[82]
Hukusima, Iwasiro	209
Hukuyama, Osima	141
Hukuyama, Bingo	268
Hunama	[104]
Hūren	116
Huzi	[48]...[51]
I	
Iida	80
Iiyama	20
Ikuno	232
Ikusazawa	[182]
Imabaru	288
Imaiti	[264]
Ippongi	193
Isinomaki	181
Itiki, Iwami	261
Itiki, Satuma	[299]
Itinomiya	202
Itoigawa	16
Iwaizumi	[175]
Iwamizawa	[108]
Iwanai	102
K	
Kagosima	298
Kakudate	[185]

TABLE XVII. (*Continued.*)

Alphabetical List of Stations.

Stations.	No.	Stations.	No.	Stations.	No.
Kamaisi	179	Kuma, Bungo	319	Memuro	152
Kameyama	72	Kumagai	38	Midono	[45]
Kamiiti	241	Kumamoto	311	Midzusawa	165
Kamisuwa	12	Kurosaka	266	Mihara	252
Kamo	[26]	Kuruma	[15]	Mikkaiti	98
Kamiyasiro	74	Kusimoto	248	Minabe	245
Kanazawa	93	Kutō	139	Minamata	306
Karatu	320	Kutukake	[10]	Mito	205
Kariwano	[186]	Kuzi, Rikutyū	172	Mituike	[56] ..[58]
Karuizawa	9	Kuzu, Iyo	286	Miyadi	312
Kaseda	[301]	Kyōto	227	Miyako	[176]
Kasiwazaki	[23]	**M**		Miyakonozyō	295
Katikawa	76	Maebara	203	Miyatu	229
Kawanoe	289	Maegasu	70	Miyazaki	294
Kesennuma	180	Makado	196	Miyosi	262
Kisaratu	204	Makurazaki	300	Miyota	8
Kiyosu	77	Mamihara	[313]	Monbetu	128
Koga	225	Marugame	290	Mori	137
Kogota	103	Masike	114	Morioka	167
Kōhu	[4]	Matiyamaguti	310	Moyoro	150
Kokura	316	Matue	265	Mozumi	97
Kominatotaira (Sameura)	170	Matuida	35	Murakami	215
Komoro	[7]	Matumoto	13	Murayama	[52]
Kōti	275	Matuō	81	Murodzumi	255
Kōwa	67	Matusaka	251	Myōzi	242
Kōyama	297	Matuyama	285	**N**	
Kuma, Iyo	287	Matuzaki	42	Nagahama	88

TABLE XVII. (*Continued.*)

Alphabetical List of Stations.

Stations.	No.	Stations.	No.	Stations.	No.
Nagamine	87	Numata	37	Ōtoti	276
Nagano	19	Numazu	63	Ōtu, Sagami	44
Nagaoka	22	Nuppamamoi	[121]	Ōtu, Tokati	[156]
Nagasaki	[308]			Ozasa	[32]
Nagasima	250	**O**			
Nagoya	69	Obama	230	**P**	
Nakamatama	318	Ōdate	190	Porokamuikotan	[113]
Nakamati	296	Odawara	39	Poronai	127
Nakamura	278	Ogi	31	Pōsinaipitari	[118]
Nakatu	317	Oguni, Rikutyū	[177]		
Nakatugawa	79	Oguni, Uzen	216	**R**	
Nakayama	[168]	Ohotukawa	[112]	Rausu	134
Namie	207	Oita	284	**S**	
Nanao	94	Okayama	237	Saganoseki	282
Nara	240	Okazaki	66	Saiki	283
Narumi	68	Okurumatomanai	[119]	Sakai	231
Nawari	274	Ōmu	[194]	Sakata	213
Nayoropt	[120]	Ōmati	14	Sakura	199
Nemuro	[161]	Ōmiya	[62]	Sapporo	107
Niigata	25	Ōno, Etizen	91	Sarubutu	[125]
Nikkō	221	Ōno, Rikutyū	[171]	Saruhasi	[3]
Nisinasuno	223	Ōsato	273	Sarupt.	145
Nisinoto	65	Osyamanbe	100	Sasayama	228
Nogami	130	Osyatinai	146	Sasebo	309
Nohuka	[147]	Otasoi	153	Sawara	200
Nomugi	83	Otaru	105	Sekiyama	18
Nōsiro	189	Otaru-Myōkenzan	106	Sendai	162

TABLE XVII. *(Continued.)*

Alphabetical List of Stations.

Stations.	No.
Setana	138
Sibata	27
Sibetu	135
Sibetya	[158]
Simabara	307
Simizu	64
Simoda	[41]
Simoinnai	183
Sinryū	[160]
Sinzyō	212
Sioya	92
Siramuka	157
Sirasitomari	115
Siriuti	142
Sitata	254
Soratipt	109
Sōya	124
Sukagawa	222
Sumoto	244
Susaki	277
Suttu	101
Syari	133
Syorusam	154
Syoya	149
T	
Tadami	220
Takahasi	270
Takamatu	291
Takasaki	36
Takata	17
Takayama	84
Takehu	90
Tanabu	[195]
Tazima	219
Teradomari	[24]
Tesio	117
Tikatuyu	[246]
Tip-Yabusi	110
Tiribetu	143
Toba	75
Tōkamati	21
Tokusima	271
Tōkyō	1a
"	1b
Tomakomai	[144]
Tono	178
Tonosyō	292
Tottori	234
Toyama	96
Toyooka	233
Tōzyō	[267]
Tu	73
Tugawa	217
Turuga	89
Tuwano	257
Tuyama	236
Tyōsi	201
Tyūrui	151
U	
Ueda, Sinano	11
Ueda, Iwaki	206
Umagaesi	[47]
Uminokuti	5
Urakawa	[148]
Usuta	6
Utunomiya	224
Uwazima	279
W	
Wakamatu	218
Wakamiya	280
Wakasakanai	[122]
Wakasare	[33]
Wakayama	243
Wakkanai	123
Wakimati	272
Wasizaki	29
Watari	[208]
Wazima	95
Y	
Yahatahama	[281]
Yamagata	211
Yamaguti	256
Yanagawa	314
Yatusiro	305
Yobetu	[103]
Yokkaiti	71
Yokogawa	[302]
Yokote	184
Yonezawa	210
Yosida	[46]
Yūbetu	[129]
Yunomae	304
Z	
Zaikōzi	293

§ 11. Vertical Current.

It is usual in magnetic surveys to calculate the amount of the vertical current of electricity by taking the line integral of the magnetic force round the periphery of the country. The same was tried here in the circuit indicated in Fig. 4 by taking the integral along the co-ordinate lines thus:—

$$w = \frac{1}{4\pi}\left\{\int Y dy - \int X dx\right\}$$

which may be put for numerical calculation

$$w = \frac{R}{4\pi}\sum(Y_n \cos\varphi_n - Y_s \cos\varphi_s)\Delta\lambda - \sum(X_w - X_e)\Delta\varphi$$

where the suffixes n, s, w, e, denote the values of those quantities on the north, south, west and east side of the circuit, and R the mean radius of the earth; the positive sense of the co-ordinates x, y, z are north, west and up respectively.* Performing the operations above indicated we have

$$\frac{R}{4\pi}\sum(Y_n \cos\varphi_n - Y_s \cos\varphi_s)\Delta\lambda = \quad 0.03973 \times \text{length of } 1^\circ$$

$$\frac{R}{4\pi}\sum(X_w - X_e)\Delta\varphi \qquad = \quad 0.04146 \times \quad ,, \quad ,, \quad ,,$$

whence

$$w = -0.00173 \times \frac{6.37 \times 10^8}{4\pi} \times .01745$$

$$= -1531 \quad \text{c.g.s. el. mag. units.}$$

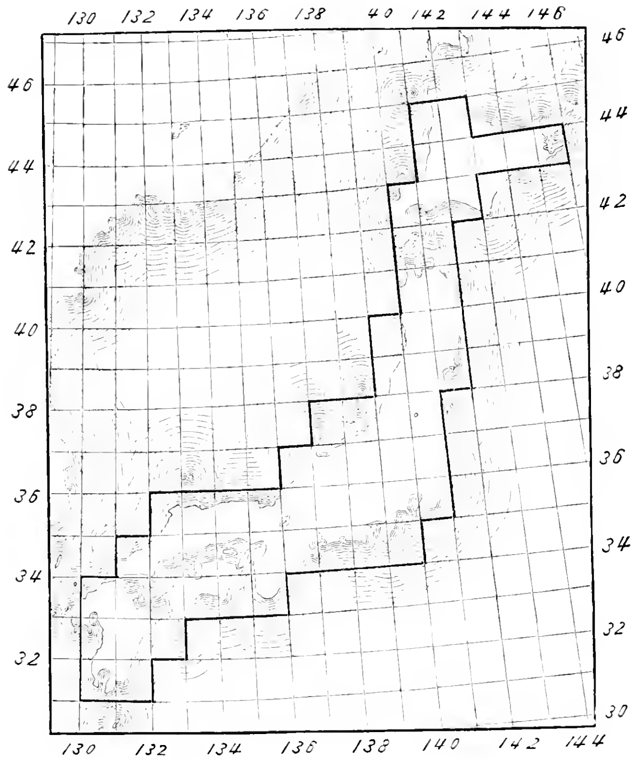
The area of the circuit is 5.701×10^5 sq. kilom. hence the mean current density is

$$\frac{-1531 \times 10}{5.701 \times 10^5} = -0.027 \text{ Ampere per sq. kilom.}$$

minus sign indicating the downward direction.

* This is the same as that adopted by Prof. Schuster; the sense of y and z are contrary to that used by Gauss and other continental writers.

Fig. 4.



The above method is unsatisfactory, and the small value of the mean current density is sometimes misleading; for in the first place it gives no information of current densities in different parts of the country where they might have any values with opposite signs; and in the second place the integration is carried out along the borders where the empirical formulæ become very poor representatives of isomagnetics owing to the increase of errors as shown in p. 35 above.

Transforming the line integral into surface integral in the usual way, we get the details of its distribution thus,

TABLE

Vertical Current in Ampers per sqr. kilom. at 1895.0 at the Intersections of entire Degrees of

φ \ λ	129°	130°	131°	132°	133°	134°	135°	136°	137°
46°									
45°									
44°									
43°									
42°									
41°									
40°									
39°									
38°									−0.171
37°								−0.154	−0.091
36°				−0.299	−0.246	−0.191	−0.134	−0.075	−0.014
35°			−0.262	−0.213	−0.163	−0.111	−0.054	0.003	0.062
34°		−0.221	−0.177	−0.131	−0.081	−0.029	0.024	0.079	0.136
33°	−0.176	−0.135	−0.093	−0.048	−0.000	0.049	0.101	0.154	
32°		−0.053	−0.012	0.032	0.078				
31°		0.028	0.067	0.109					
φ \ λ	129°	130°	131°	132°	133°	134°	135°	136°	137°

XVIII.

Longitude and Latitude, Calculated from the Formulæ for Horizontal Force and Declination.

138°	139°	140°	141°	142°	143°	144°	145°	146°	λ / φ
				−0.426					46°
			−0.435	−0.346	−0.254				45°
			−0.353	−0.266	−0.178	−0.089	0.001	0.092	44°
		−0.356	−0.274	−0.189	−0.103	−0.017	0.071	0.159	43°
		−0.274	−0.194	−0.113	−0.030				42°
		−0.195	−0.117	−0.039					41°
	−0.192	−0.117	−0.041	0.035					40°
	−0.113	−0.041	0.033	0.106					39°
−0.104	−0.036	0.033	0.105	0.177					38°
−0.027	0.039	0.107	0.176						37°
0.048	0.113	0.178	0.245						36°
0.122	0.185	0.246	0.313						35°
0.195	0.255	0.313							34°
									33°
									32°
									31°
138°	139°	140°	141°	142°	143°	144°	145°	146°	φ / λ

$$4\pi w = \frac{\partial Y}{\partial x} - \frac{\partial X}{\partial y}$$

which in polar co-ordinates becomes

$$w = \frac{1}{4\pi R}\left(\frac{\partial Y}{\partial \varphi} - Y\operatorname{tg}\varphi - \frac{1}{\cos\varphi}\frac{\partial X}{\partial \lambda}\right)$$

or replacing X, Y by $H\cos\delta$ and $H\sin\delta$, we have

$$w = \frac{1}{4\pi R}\left\{\frac{\partial H}{\partial \varphi}\sin\delta + H\cos\delta\frac{\partial \delta}{\partial \varphi} - H\sin\delta\operatorname{tg}\varphi \right.$$
$$\left. - \frac{1}{\cos\varphi}\left(\frac{\partial H}{\partial \lambda}\cos\delta - H\sin\delta\frac{\partial \delta}{\partial \lambda}\right)\right\}$$

in terms of the observed elements. The ellipticity of the meridian arc is neglected as its correction falls within the errors of observations at present. If the rectangular components, instead of the declination, dip and horizontal force, be expanded in different powers of differential longitude and latitude the calculation becomes much simpler. The differences of rectangular components in Tables XII and XIII give sufficiently close approximation of the differential coefficients as was found by actual trial. The currents found by the above formula are given in Table XVIII and Map 8.

By way of comparison, the current densities are calculated for Austria and Great Britain. Map 9 gives the lines of equal vertical currents obtained from the expressions of magnetic elements in Austria given by Prof. Liznar, and Map 9a the same for Great Britain obtained from the data given by Profs. Rücker and Thorpe. In the latter, two systems of lines are given; the dotted lines are those calculated by taking differences of rectangular components computed from elements in Tables III, VI and IX in Vol. 188 of the Philosophical Transactions of the Royal Society of London: those lines are not

naturally continuous as the magnetic elements in those tables are expressed by different formulae for different districts of that country. The full lines are continuous, they are calculated from the quadratic expressions,

$$
\begin{array}{llllllll}
X = & \overset{\gamma}{16346.0} & - \overset{\gamma}{109.69}\,\varDelta\lambda & - \overset{\gamma}{405.93}\,\varDelta\varphi & + \overset{\gamma}{0.639}\,\varDelta\lambda^2 & - \overset{\gamma}{2.040}\,\varDelta\lambda\varDelta\varphi & + \overset{\gamma}{9.683}\,\varDelta\varphi^2 \\
 & \pm 5.9 & \pm 1.45 & \pm 2.10 & \pm 0.654 & \pm 1.693 & \pm 1.128 \\
Y = & \overset{\gamma}{5869.9} & + \overset{\gamma}{128.17}\,\varDelta\lambda & - \overset{\gamma}{39.29}\,\varDelta\varphi & + \overset{\gamma}{0.116}\,\varDelta\lambda^2 & + \overset{\gamma}{1.609}\,\varDelta\lambda\varDelta\varphi & - \overset{\gamma}{3.149}\,\varDelta\varphi^2 \\
 & \pm 5.1 & \pm 1.25 & \pm 1.82 & \pm 0.566 & \pm 1.465 & \pm 0.977 \\
Z = & -\overset{\gamma}{44895.3} & - \overset{\gamma}{108.20}\,\varDelta\lambda & - \overset{\gamma}{408.99}\,\varDelta\varphi & + \overset{\gamma}{0.950}\,\varDelta\lambda^2 & - \overset{\gamma}{10.142}\,\varDelta\lambda\varDelta\varphi & + \overset{\gamma}{4.027}\,\varDelta\varphi^2 \\
 & \pm 6.4 & \pm 1.56 & \pm 2.26 & \pm 0.704 & \pm 1.823 & \pm 1.215
\end{array}
$$

$$\varDelta\lambda = (\lambda - 4^\circ \text{ W.})^\circ ; \qquad \varDelta\varphi = (\varphi - 53^\circ \text{ N.})^\circ$$

derived from the values at the 9 so called Central Stations given in Tables I, IV and VII in the same volume. Table XIX gives the observed and calculated values of these elements.

TABLE XIX.

Rectangular Components of Magnetic Force in Great Britain.

Central Station.	X			Y			Z		
	Observed	Calculated	Diff. (Obs.-Cal.)	Observed	Calculated	Diff. (Obs.-Cal.)	Observed	Calculated	Diff. (Obs.-Cal.)
	γ	γ	γ	γ	γ	γ	γ	γ	γ
I	14950.0	14955.9	− 5.9	5731.0	5733.5	− 2.5	−46381.0	−46381.3	+ 0.3
II	15510.0	15497.8	+12.2	5685.0	5677.8	+ 7.2	−45771.0	−45772.4	+ 1.4
III	16384.0	16396.5	−12.5	5598.0	5609.0	−11.0	−44853.0	−44842.5	−10.5
IV	17209.0	17204.7	+ 4.3	5512.0	5506.0	+ 6.0	−44066.0	−44074.4	+ 8.4
V	15534.0	15534.6	− 0.6	6296.0	6298.0	− 2.0	−45744.0	−45737.2	− 6.8
VI	15973.0	15968.2	+ 4.8	6057.0	6054.2	+ 2.8	−45268.0	−45279.5	+11.5
VII	17252.0	17249.7	+ 2.3	5819.0	5825.2	− 6.2	−44030.0	−44020.9	− 9.1
VIII	15956.0	15956.3	− 0.3	6414.0	6413.9	+ 0.1	−45267.0	−45268.0	+ 1.0
IX	16829.0	16833.0	− 4.0	5990.0	5984.3	+ 5.7	−44403.0	−44407.3	+ 4.3

All these three surveys give the line of no current through the middle of the country; in Japan the current is upward on the Pacific side and downward on the Siberian side; in Austria it is upward on the north and downward on the south; in Great Britain, upward on the east and downward on the west.

Whether these distributions of current density show the real average state of things during the surveys of the respective countries or not is very doubtful. The fact that the line of no current runs through the middle in each of those countries inspite of different aspects of their distributions, seem to indicate that they are the result of uncompensated local disturbances and inadequacy of the empirical formulæ to a large extent, if not wholly. Considering that these currents depend upon the differences of differential coefficients of the observed elements, observations of greater refinements than the present, both in construction of instruments and distribution of stations, will be necessary in order to settle the question more definitely; certainly these currents can be accounted for by the probable errors in the constants of the empirical formulæ, at least in the case of Japan. Even in Great Britain, where the survey was very carefully carried out by excellent hands, the two sets of lines of equal currents present very different appearances according as they are derived from the district equations or general equations for the whole country (See Map 9a).

Under such circumstances the most fascinating subject of the motion of electricity from or towards the earth's surface must be left untouched, be it due to the diurnal motion of the earth or transference of ions with water vapour and the like. These will probably be better elucidated by pursuing other methods of investigation. It may be a good plan to improve

those empirical coefficients by imposing the condition of irrotationality among them, as was suggested by the writer on previous occasion. This being premissed, the values along the line of no current will be represented nearer to the truth than the rest and should be taken in preference to values at other places in deducing the magnetic constants of the whole globe.

§ 12. Vertical Variations of Magnetic Elements.

The variations of magnetic elements due to difference of level has recently been computed by Prof. Liznar from 205 observations taken at different elevations during the magnetic survey of Austria and Hungary. He arrives at results which are more than three times as great as those obtained by taking the differential coefficients of the first term in the spherical harmonic expansion. This discrepancy is ascribed by the author to probable causes external to the earth and doubt is thrown upon the Gaussian method of representing the magnetic potential of the earth.

Later still, van Rijckevorsel and van Bemmelen made special investigations on the subject by taking a large number of observations on the Rigi and came to the conclusion that the variation of dip due to height are so small that they are almost entirely masked by the instrumental and observational errors.

The chief difficulty in such case lies evidently in the fact that observations at high level are made on mountains which are themselves more or less magnetic presenting local disturbances often exceeding the mere effect due to elevation.

The plan here adopted is to deduce those vertical variations from their values observed on level surface, supposing the electric

current flowing in the atmosphere to be negligibly small. It is free from any special assumption as to the distribution of magnetism either inside or outside the earth; local disturbances being eliminated by taking sufficient number of well distributed stations.

Taking the rectangular co-ordinates x y z reckoned positive towards north, west and zenith as before, we have the well known equations

$$4\pi u = \frac{\partial Z}{\partial y} - \frac{\partial Y}{\partial z}$$

$$4\pi v = \frac{\partial X}{\partial z} - \frac{\partial Z}{\partial x}$$

$$4\pi w = \frac{\partial Y}{\partial x} - \frac{\partial X}{\partial y}$$

and
$$4\pi \rho = \frac{\partial X}{\partial x} + \frac{\partial Y}{\partial y} + \frac{\partial Z}{\partial z}$$

where X, Y, Z, are components of magnetic force, and u v w those of electric current, and ρ the density of free magnetism.

We have no precise means of ascertaining the horizontal components of current u and v; but from the distributions of X and Y, the vertical component w has already been computed, the extreme value found being 0.43 Ampere per square kilometer. Hence supposing u and v to be of the same order of magnitude, the error committed by neglecting those will be of the order $4\pi \times 0.043 \times 10^{-10} \times 10^{5} = 5.4 \times 10^{-6} \cdot \ \frac{1}{2}\gamma$ per kilometer which is only a little greater than what the probable errors of those coefficients will produce. The value of $4\pi\rho$ arising from the heterogeneity of the atmospheric air is utterly insignificant being only $6.4 \times 10^{-4}\gamma$ per kilometer in middle part of Japan, taking the susceptibility of the air to be $3.2 \times 10^{-8}\ e^{-Z\ 18.4\ \text{kilom.}}$. Hence putting $u = v = 0$ and $\rho = 0$ we have

$$\frac{\partial X}{\partial z} = \frac{\partial Z}{\partial x}$$

$$\frac{\partial Y}{\partial z} = \frac{\partial Z}{\partial y}$$

$$\frac{\partial Z}{\partial z} = -\frac{\partial X}{\partial x} - \frac{\partial Y}{\partial y}$$

expressing vertical variations of rectangular components in terms of their horizontal variations.* It appears at first sight that the curvature of the earth surface may be neglected for the extent of the country covering only a few degrees of longitude and latitude; calculation shows, however, that it plays an important part; transforming, therefore these equations into polar co-ordinates, we have

$$\frac{\partial X}{\partial z} = \frac{1}{R}\left(\frac{\partial Z}{\partial \varphi} - X\right)$$

$$\frac{\partial Y}{\partial z} = \frac{1}{R}\left(\frac{1}{\cos\varphi}\frac{\partial Z}{\partial \lambda} - Y\right)$$

$$\frac{\partial Z}{\partial z} = -\frac{1}{R}\left(\frac{\partial X}{\partial \varphi} + \frac{1}{\cos\varphi}\frac{\partial Y}{\partial \lambda} - X\ \mathrm{tg}\ \varphi + 2Z\right)$$

R being the mean radius of the earth, $\lambda\ \varphi$ longitude and latitude measured positive toward zenith, west and north respectively. If the horizontal force, declination and dip are, as usual, expanded in terms of the co-ordinates, we have to put

$$X = H\cos\delta$$

$$Y = H\sin\delta$$

$$Z = H\,\mathrm{tg}\,\theta$$

---

* After the volume was put into print, Prof. H. Nagaoka has drawn the writer's attention to the Sixth Chapter of F. Neumann's "Theorie des Potentials" where the same problem is discussed, though approached in different way.

$$\frac{\partial X}{\partial \varphi} = \frac{\partial H}{\partial \varphi}\cos\delta - H\sin\delta\frac{\partial \delta}{\partial \varphi}$$

$$\frac{\partial Y}{\partial \lambda} = \frac{\partial H}{\partial \lambda}\sin\delta + H\cos\delta\frac{\partial \delta}{\partial \varphi}$$

$$\frac{\partial Z}{\partial \lambda} = \frac{\partial H}{\partial \lambda}\mathrm{tg}\,\theta + H\sec^2\theta\frac{\partial \theta}{\partial \lambda}$$

$$\frac{\partial Z}{\partial \varphi} = \frac{\partial H}{\partial \varphi}\mathrm{tg}\,\theta + H\sec^2\theta\frac{\partial \theta}{\partial \varphi}$$

After computing the vertical variations of the rectangular components in this way, those of the observed elements δ, θ, H, can conveniently be found as follows:—

$$\frac{\partial H}{\partial z} = \frac{\partial}{\partial z}\sqrt{X^2+Y^2}$$

$$= \cos\delta\frac{\partial X}{\partial z} + \sin\delta\frac{\partial Y}{\partial z}$$

$$\frac{\partial \delta}{\partial z} = \frac{\partial}{\partial z}\mathrm{tg}^{-1}\frac{Y}{X}$$

$$= \frac{\cos\delta}{H}\left(\frac{\partial Y}{\partial z} - \mathrm{tg}\,\delta\frac{\partial X}{\partial z}\right)$$

$$\frac{\partial \theta}{\partial z} = \frac{\partial}{\partial z}\mathrm{tg}^{-1}\frac{Z}{H}$$

$$= \frac{\cos\theta}{I}\left(\frac{\partial Z}{\partial z} - \mathrm{tg}\,\theta\frac{\partial H}{\partial z}\right)$$

and

$$\frac{\partial I}{\partial z} = \frac{\partial}{\partial z}H\sec\theta$$

$$= \sec\theta\left(\frac{\partial H}{\partial z} + Z\frac{\partial \theta}{\partial z}\right)$$

The reduction to the sea level of § 8 were calculated by these formulæ using the first approximate values used for deducing the annual variations.

Tables XX to XXV give data and values of these variations for Japan, Austria and Hungary, and Great Britain, at

five points in each, distributed so as to cover different quarters of the countries. In Great Britain the Central Stations of the Districts I, III, V, VII and IX are taken as representatives. The last figures of numbers exceeding 20.″0 in those tables will be slightly affected by taking into account the difference of principal curvatures of the earth surface in various latitudes, but since their probable errors come to the same order of magnitude in such cases, the mean radius is used for simplicity.

TABLE XX.

Data for the Calculation of Vertical Variations of Magnetic Elements in *Japan.*

	I.	II.	III.	IV.	V.
λ E of Gr.	142° 30′	140° 30′	138° 00′	134° 00′	131° 00′
φ N	43° 30′	38° 30′	36° 00′	34° 30′	32° 30′
H	26558$^{\gamma}$	28677$^{\gamma}$	29760$^{\gamma}$	30622$^{\gamma}$	31598$^{\gamma}$
δ W.	5° 55′.4	5° 03′.2	4° 45′.7	4° 39′.6	4° 02′.2
θ	−57° 13′.1	−52° 13′.1	−49° 41′.9	−48° 27′.5	−46° 27′.3
X	26415$^{\gamma}$	28566$^{\gamma}$	29657$^{\gamma}$	30521$^{\gamma}$	31520$^{\gamma}$
Y	2740	2526	2471	2488	2224
Z	−41237	−37000	−35089	−34566	−33251
I	49050	46814	46009	46182	45873
$\frac{\partial H}{\partial \varphi}$ per 1°	−424.7$^{\gamma}$	−378.7$^{\gamma}$	−353.8$^{\gamma}$	−335.5$^{\gamma}$	−314.4$^{\gamma}$
$\frac{\partial H}{\partial \lambda}$,,	52.1$^{\gamma}$	59.8$^{\gamma}$	73.7$^{\gamma}$	99.7$^{\gamma}$	117.8$^{\gamma}$
$\frac{\partial \delta}{\partial \varphi}$ per 1°	15′.3	16′.6	17′.5	18′.7	19′.7
$\frac{\partial \delta}{\partial \lambda}$,,	15′.7	11′.9	8′.0	2′.5	−1′.9
$\frac{\partial \theta}{\partial \varphi}$ per 1°	−60′.0	−65′.7	−69′.2	−72′.4	−75′.7
$\frac{\partial \theta}{\partial \lambda}$,,	− 7′.8	− 6′.8	− 7′.1	− 8′.8	− 9′.7

TABLE XXI.

Vertical Variations of Magnetic Elements in *Japan*.

	I.	II.	III.	IV.	V.
$\frac{\partial X}{\partial z}$ per kilom.	−12.2	−13.2	−13.8	−14.6	−15.2
$-(3h/R)X$	−12.5	−13.4	−14.0	−14.4	−14.9
Diff.	+.3	+.2	+.2	−.2	−.3
$\frac{\partial Y}{\partial z}$ per kilom.	− 4.0	− 3.0	− 3.0	− 3.6	− 3.7
$-(3h/R)Y$	− 1.3	− 1.2	− 1.2	− 1.2	− 1.1
Diff.	− 2.7	− 1.8	− 1.8	− 2.4	− 2.6
$\frac{\partial Z}{\partial z}$ per kilom.	* 19.2	17.5	16.8	16.9	16.4
$-(3h/R)Z$	19.4	17.4	16.5	16.3	15.7
Diff.	−.2	+.1	+.3	+.6	+.7
$\frac{\partial H}{\partial z}$ per kilom.	−12.5	−13.5	−14.0	−14.8	−15.4
$-(3h/R)H$	−12.5	−13.5	−14.0	−14.4	−14.9
Diff.	0	0	0	−.4	−.5
$\frac{\partial I}{\partial z}$ per kilom.	−22.9	−22.0	−21.7	−22.4	−22.4
$-(3h/R)I$	−23.1	−22.0	−21.7	−21.8	−21.6
Diff.	+.2	0	0	−.6	−.8
$\frac{\partial \delta}{\partial z}$ per kilom.	−0'.35	−0'.22	−0'.21	−0'.27	−0'.29
$\frac{\partial \theta}{\partial z}$ per kilom.	−0'.01	+0'.01	+0'.02	+0.01	+0'.01

* Since Z is negative upward, + correction means upward diminution in the intensity of Z.

TABLE XXII.

Data for the Calculation of Vertical Variations of Magnetic Elements in *Austria and Hungary.*

		I.	II.	III.	IV.	V.
λ E of Gr.		15°	15°	20°	25°	25°
φ N.		50°	45°	47°	50°	45°
H		19769^{γ}	21982^{γ}	21474^{γ}	20576^{γ}	22778^{γ}
δ W.		9° 50′.3	9° 51′.7	7° 34′.9	4° 45′.2	5° 42′.0
θ		−64° 49′.5	−60° 44′.5	−61° 55′.9	−63° 58′.7	−59° 43′.2
X		19479^{γ}	21657^{γ}	21286^{γ}	20505^{γ}	22666^{γ}
Y		3378	3765	2833	1705	2263
Z		−42059	−39238	−40271	−42147	−39012
I		46473	44976	45638	46901	45175
$\frac{\partial H}{\partial \varphi}$	per 1°	$-433^{\gamma}.5$	$-451^{\gamma}.4$	$-443^{\gamma}.3$	$-431^{\gamma}.6$	$-449^{\gamma}.5$
$\frac{\partial H}{\partial \lambda}$	,,	$-75^{\gamma}.6$	$-74^{\gamma}.6$	$-80^{\gamma}.1$	$-85^{\gamma}.7$	$-84^{\gamma}.7$
$\frac{\partial \delta}{\partial \varphi}$	,,	− 0′.4	− 0′.1	− 5′.8	− 11′.5	− 11′.2
$\frac{\partial \delta}{\partial \lambda}$	,,	30′.7	25′.2	27′.2	30′.3	24′.8
$\frac{\partial \theta}{\partial \varphi}$	,,	−45′.5	−52′.5	−50′.7	−47′.6	−54′.6
$\frac{\partial \theta}{\partial \lambda}$	,,	− 6′.0	− 7′.0	− 5′.8	− 4′.2	− 5′.2

TABLE XXIII.

Vertical Variations of Magnetic Elements in *Austria and Hungary.*

	I.	II.	III.	IV.	V.
$\frac{\partial X}{\partial z}$ per kilom.	$-7^{\gamma}.8$	$-8^{\gamma}.8$	$-8^{\gamma}.8$	$-8^{\gamma}.6$	$-9^{\gamma}.4$
$-(3h/R)X$	-9.2	-10.2	-10.0	-9.7	-10.7
Diff.	$+1.4$	$+1.4$	$+1.2$	$+1.1$	$+1.3$
$\frac{\partial Y}{\partial z}$ per kilom.	$-0^{\gamma}.9$	$-1^{\gamma}.3$	$-0^{\gamma}.6$	$+0^{\gamma}.4$	$-0^{\gamma}.2$
$-(3h/R)Y$	-1.6	-1.8	-1.3	$-.8$	-1.1
Diff.	$+.7$	$+.5$	$+.7$	$+1.2$	$+.9$
$\frac{\partial Z}{\partial z}$ per kilom.	$18^{\gamma}.5$	$17^{\gamma}.7$	$18^{\gamma}.1$	$18^{\gamma}.5$	$17^{\gamma}.8$
$-(3h/R)Z$	19.8	18.2	19.0	19.8	18.4
Diff.	-1.3	$-.5$	$-.9$	-1.3	$-.6$
$\frac{\partial H}{\partial z}$ per kilom.	$-7^{\gamma}.8$	$-8^{\gamma}.9$	$-8^{\gamma}.8$	$-8^{\gamma}.5$	$-9^{\gamma}.4$
$-(3h/R)H$	-9.3	-10.4	-10.3	-9.7	-10.7
Diff.	$+1.5$	$+1.5$	$+1.5$	$+1.2$	$+1.3$
$\frac{\partial I}{\partial z}$ per kilom.	$-20^{\gamma}.0$	$-19^{\gamma}.8$	$-20^{\gamma}.2$	$-20^{\gamma}.7$	$-21^{\gamma}.0$
$-(3h/R)I$	-21.9	-21.2	-21.5	-22.1	-21.3
Diff.	$+1.9$	$+1.4$	$+1.3$	$+1.4$	$+.3$
$\frac{\partial \delta}{\partial z}$ per kilom.	$+0'.07$	$+0'.04$	$+0'.09$	$+0'.17$	$+0'.11$
$\frac{\partial \theta}{\partial z}$ per kilom.	$+0'.06$	$+0'.07$	$+0'.06$	$+0'.03$	$+0'.10$

* Since Z is negative upward, + correction means upward diminution in the intensity of Z.

TABLE XXIV.

Data for the Calculation of Vertical Variation of Magnetic Elements in *Great Britain.*

	I.	III.	V.	VII.	IX.
λ W of Gr.	4° 21'.5	2° 05'.9	7° 37'.9	3° 08'.0	4° 32'.6
φ	56° 38'.2	53° 24'.2	54° 02'.7	51° 05'.3	51° 41'.9
H	16011^{γ}	17313^{γ}	16761^{γ}	18206^{γ}	17863^{γ}
δ	20° 58.4	18° 51'.8	22° 03'.9	18° 38'.4	19° 35'.5
θ	−70° 57'.3	−68° 53'.6	−69° 52'.6	−67° 32'.1	−68° 05'.2
X	14950^{γ}	16384^{γ}	15534^{γ}	17252^{γ}	16829^{γ}
Y	5731	5598	6296	5819	5990
Z	−46381	−44853	−45744	−44030	−44403
I	49069	48078	48717	47645	47863
$\frac{\partial H}{\partial \varphi}$ per 1°	-381.7^{γ}	-404.2^{γ}	-402.9^{γ}	-426.6^{γ}	-413.7^{γ}
$\frac{\partial H}{\partial \lambda}$ „	-67.7^{γ}	-59.3^{γ}	-80.2^{γ}	-75.7^{γ}	-62.8^{γ}
$\frac{\partial \delta}{\partial \varphi}$ per 1°	13'.1	14'.6	22'.6	12'.5	19'.4
$\frac{\partial \delta}{\partial \lambda}$ „	32'.5	30'.3	32'.8	30'.5	30'.8
$\frac{\partial \theta}{\partial \varphi}$ per 1°	−34'.5	−37'.2	−35'.4	−41'.4	−38'.7
$\frac{\partial \theta}{\partial \lambda}$ „	− 6'.7	− 6'.3	− 8'.2	− 8'.1	− 6'.6

TABLE XXV.

Vertical Variation of Magnetic Elements in *Great Britain.*

	I.	III.	V.	VII.	IX.
$\frac{\partial X}{\partial z}$ per kilom.	$-6\overset{\gamma}{.}0$	$-6\overset{\gamma}{.}2$	$-5\overset{\gamma}{.}7$	$-6\overset{\gamma}{.}9$	$-6\overset{\gamma}{.}4$
$-(3h/R)X$	− 7.0	− 7.7	− 7.3	− 8.1	− 7.9
Diff.	+ 1.0	+ 1.5	+ 1.6	+ 1.2	+ 1.5
$\frac{\partial Y}{\partial z}$ per kilom.	$-2\overset{\gamma}{.}5$	$-2\overset{\gamma}{.}3$	$-2\overset{\gamma}{.}8$	$-2\overset{\gamma}{.}5$	$-2\overset{\gamma}{.}3$
$-(3h/R)Y$	− 2.7	− 2.6	− 3.0	− 2.7	− 2.8
Diff.	+ .2	+ .3	+ .2	+ .2	+ .5
$\frac{\partial Z}{\partial z}$ per kilom.	$19\overset{\gamma}{.}6$	$19\overset{\gamma}{.}3$	$19\overset{\gamma}{.}7$	$19\overset{\gamma}{.}2$	$19\overset{\gamma}{.}2$
$-(3h/R)Z$	21.9	21.1	21.5	20.7	20.9
Diff.	− 2.3	− 1.8	− 1.8	− 1.5	− 1.7
$\frac{\partial H}{\partial z}$ per kilom.	$-6\overset{\gamma}{.}5$	$-6\overset{\gamma}{.}6$	$-6\overset{\gamma}{.}3$	$-7\overset{\gamma}{.}4$	$-6\overset{\gamma}{.}8$
$-(3h/R)H$	− 7.5	− 8.1	− 7.9	− 8.6	+ 8.4
Diff.	+ 1.0	+ 1.5	+ 1.6	+ 1.2	+ 1.6
$\frac{\partial I}{\partial z}$ per kilom.	$-20\overset{\gamma}{.}7$	$-20\overset{\gamma}{.}4$	$-20\overset{\gamma}{.}6$	$-20\overset{\gamma}{.}5$	$-20\overset{\gamma}{.}3$
$-(3h/R)I$	−23.1	−22.6	−22.9	−22.4	−22.6
Diff.	+ 2.4	+ 2.2	+ 2.3	+ 1.9	+ 2.3
$\frac{\partial \delta}{\partial z}$ per kilom.	−0′.04	−0′.03	−0′.10	−0′.03	−0′.00
$\frac{\partial \theta}{\partial z}$ per kilom.	+0′.02	+0′.06	+0′.06	+0′.04	+0′.06

* Since Z is negative upward, + correction means upward diminution in the intensity of Z.

Comparing those variations with the coefficients of the first term of harmonic expansion we observe that the agreement is fairly close. It is interesting to remark that even from surveys made over so small portions of the earth surface, we can see where the principal origin of the terrestrial magnetism lies, that is in Gauss's sense.

Gauss's Circuit.

Gauss in his classical example of the Göttingen-Milan-Paris circuit, might have gone a step further and found those variations approximately. Taking his data and reducing to c. g. s. units we have

	λ	φ	δ	θ	H	Arbitrary units.
Göttingen	$9°\ 58'$	$51°\ 32'$	$18°\ 38'$	$-67°\ 56'$	17813^{γ}	$=0.50980$
Milan	$9°\ 09'$	$45°\ 28'$	$18°\ 33'$	$-63°\ 49'$	19949^{γ}	$=0.57094$
Paris	$2°\ 21'$	$48°\ 52'$	$22°\ 04'$	$-67°\ 24'$	18101^{γ}	$=0.51804$

Whence the rectangular components are

	X	Y	Z
Göttingen	16880^{γ}	5692^{γ}	-43942^{γ}
Milan	18913^{γ}	6347^{γ}	-40572^{γ}
Paris	16775^{γ}	6800^{γ}	-43485^{γ}

which give uniquely

$$X = \quad 17522\overset{\gamma}{.}8 + 137\overset{\gamma}{.}7\,\varDelta\lambda - 353\overset{\gamma}{.}7\,\varDelta\varphi$$

$$Y = \quad 6279\overset{\gamma}{.}7 - 112\overset{\gamma}{.}9\,\varDelta\lambda - \ \ 92\overset{\gamma}{.}7\,\varDelta\varphi$$

$$Z = -42666\overset{\gamma}{.}3 + 141\overset{\gamma}{.}3\,\varDelta\lambda - 574\overset{\gamma}{.}5\,\varDelta\varphi$$

where $\varDelta\lambda = (\lambda - 7°.16)°\text{E.}$, $\varDelta\varphi = (\varphi - 48°.62)°$ expressed in degrees.

With these values the vertical variations at the mean point, $\lambda=7°.16$ and $\varphi=48°.62$, come out:—

$$\frac{\partial X}{\partial z}=-\overset{\gamma}{7.9} \qquad \frac{\partial Y}{\partial z}=-\overset{\gamma}{2.9} \qquad \frac{\partial Z}{\partial z}=+\overset{\gamma}{18.2}$$

$$-(3h/R)X=-\ 8.2 \qquad -(3h/R)Y=-\ 3.0 \qquad -(3h/R)Z=+20.1$$

$$\text{Diff.}\quad =+\ 0.3 \qquad \text{Diff.}\quad =+\ 0.1 \qquad \text{Diff.}\quad =-\ 2.1$$

He might have thus inferred the seat of the terrestrial magnetism to lie chiefly *inside* the earth, even before undertaking that labourious series of computations which brought to light the real state of the geomagnetism for the first time.

§ 13. Disturbances in the Vertical Variations of Magnetic Force.

The vertical variations of the terrestrial magnetic force treated in the last section, differ from $-(3h/R)$ times the respective components in all the three cases. The magnitudes of the differences are greater than what can be accounted for by observational errors, being much larger than the quantities concerned in the determination of the vertical current; and their distribution is more uniform than those of the current in each country. Any one by taking observations at a dozen of well selected stations will reveal the fact if the same line of calculation be followed; as is suggested by the general resemblance of results obtained from observations of three points in Europe with those obtained from complete surveys in the two other countries.

These are no doubt due to the existence of higher harmonics in the sense of that expansion. From a physical point of view the irregularities in the surface crust of the earth, as observed in the upheavals of continents and depressions of ocean beds,

may naturally be expected to cause anomalies in the distribution of magnetic force, as was already remarked by many.

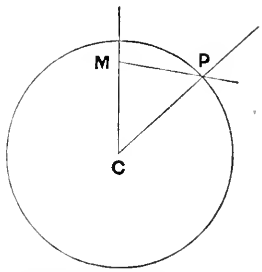
We may suppose with v. Bezold, Leyst and others, the terrestrial magnetic force observed at a place to consist of the average effect of all the magnetised parts superposed with anomalies of comparatively large extent, which again can be subdivided into mean anomalies of less extent superposed with smaller. In this respect the differences above spoken of may be called *variational anomalies*, understanding thereby nothing more than the results of numerical operations on the observed data conducted as above.

Disturbance due to a Simple Source.

In order to see roughly what sort of disturbances in the vertical variation of magnetic force is likely to be met with, take as the disturbing source a simple positive pole of strength m, placed inside a sphere representing the earth.

In Fig. 5, let C be its center, M the position of the source, P any point on the surface; and put

Fig. 5.



$CM = r$

$MP = \rho$

$MCP = \theta$

$MPC = \zeta =$ the zenith distance of the direction of the force at P;

and $CP = z =$ the variable radius vector through P (positive outward) which is to be made equal to the mean radius R, after performing differentiation. As no restriction is laid upon the value of r, the result can also be applied to the case when the source is above by making r greater than R, and paying due regard to the signs of the trigonometrical functions.

The vertical and horizontal forces at P will be

$$\left.\begin{aligned} Z' &= \frac{m}{\rho^2}\cos\zeta \\ H' &= \frac{m}{\rho^2}\sin\zeta \end{aligned}\right\} \quad (1)$$

with the geometrical relations

$$\left.\begin{aligned} \cos\zeta &= \frac{z-r\cos\theta}{\rho} \\ \sin\zeta &= \frac{r\sin\theta}{\rho} \\ \rho^2 &= r^2+z^2-2rz\cos\theta \\ \text{or} &= (z-r)^2+4rz\sin^2\frac{\theta}{2} \text{ for numerical work} \end{aligned}\right\} \quad (2)$$

Z′ and H′ denoting the vertical and horizontal components; the latter can again be resolved along any directions in the tangent plane.

Remembering that

$$\frac{\partial\rho}{\partial z}=\cos\zeta \quad \text{and} \quad \frac{\partial\zeta}{\partial z}=-\frac{\sin\zeta}{\rho}$$

the vertical variations of those forces are

$$\left.\begin{aligned} \frac{\partial Z'}{\partial z} &= -\frac{m}{\rho^3}(2\cos^2\zeta-\sin^2\zeta) \\ \frac{\partial H'}{\partial z} &= -\frac{3m}{\rho^3}\sin\zeta\cos\zeta \end{aligned}\right\} \quad (3)$$

or in terms of θ

$$\left.\begin{aligned} \frac{\partial Z'}{\partial z} &= -\frac{m}{\rho^3}\left(2-3\frac{r^2\sin^2\theta}{\rho^2}\right) \\ \frac{\partial H'}{\partial z} &= -\frac{3m}{\rho^3}\frac{r\sin\theta(R-r\cos\theta)}{\rho^2} \end{aligned}\right\} \quad (4)$$

The Vertical Force Z' is

Maximum at $\theta = 0$ i.e. epicenter

and Minimum at $\theta = \pi$ i.e. antipode.

When the source is above the level, the sense of the force is reversed near the place directly below it, which we may now call subcenter; while on the antipode side the sign remains unchanged. The surface is thus divided into two regions of positive and negative vertical forces by the nodal circle

$$\theta = \cos^{-1}\frac{R}{r} \qquad (5)$$

within the limit $R < r < \infty$;

evidently this is the circle along which a pencil of rays from the source touches the sphere. A new maximum occurs in the positive region along the circle

$$\theta = \cos^{-1}\left(2\frac{R}{r} - \frac{r}{R}\right) \qquad (6)$$

within the limit $R < r < 2R$.

It begins with 0 at the lower limit and ends with π at the higher.

The Horizontal Force H' vanishes always

at $\theta = 0$ and π

whether the source is inside or outside the sphere, being

Maximum at $\theta = \cos^{-1}\frac{1}{2}\left(\sqrt{\left(\frac{r}{R} + \frac{R}{r}\right)^2} - \frac{r}{R} - \frac{R}{r}\right)$ (7)

$0 < r < \infty$;

the value of θ remains the same by replacing r by $1/r$, so that there are two values of r corresponding to the same circle of maximum horizontal force: its position changes from $\frac{\pi}{2}$ to 0 as

the source approaches the surface from the center, and back again from 0 to $\frac{\pi}{2}$ as it recedes from there to infinite distance. The reciprocal relation of inside and outside positions of the source might well be expected, considering it as a kind of an unbalanced electric image.

When the depth is small we may neglect the curvature of the surface near the point. Putting $D=R-r$ for the depth, (1) becomes

$$\left.\begin{aligned} Z' &= \frac{m}{D^2}\cos^3\varsigma \\ H' &= \frac{m}{D^2}\sin\varsigma\cos^2\varsigma \end{aligned}\right\}(8)$$

The former is maximum at the epicenter and the latter at $\varsigma=\mathrm{tg}^{-1}\frac{1}{\sqrt{2}}$ which is the result given in Thomson and Tait's Natural Philosophy § 786.

The north and west components are to be obtained by expressing θ in terms of the longitude and latitude, and multiplying the result by cosine and sine of the azimuth, thus

$$\left.\begin{aligned} X' &= \frac{-mr\left\{\cos\varphi\sin\varphi_0-\sin\varphi\cos\varphi_0\cos(\lambda-\lambda_0)\right\}}{\left\{R^2+r^2-2rR[\sin\varphi\sin\varphi_0+\cos\varphi\cos\varphi_0\cos(\lambda-\lambda_0)]\right\}^{\frac{3}{2}}} \\ Y' &= \frac{mr\cos\varphi_0\sin(\lambda-\lambda_0)}{\left\{R^2+r^2-2rR[\sin\varphi\sin\varphi_0+\cos\varphi\cos\varphi_0\cos(\lambda-\lambda_0)]\right\}^{\frac{3}{2}}} \end{aligned}\right\}(9)$$

where λ_0 and φ_0 are the longitude and latitude of the epi- or sub-center, or *pericenter* which we substitute for the two words.

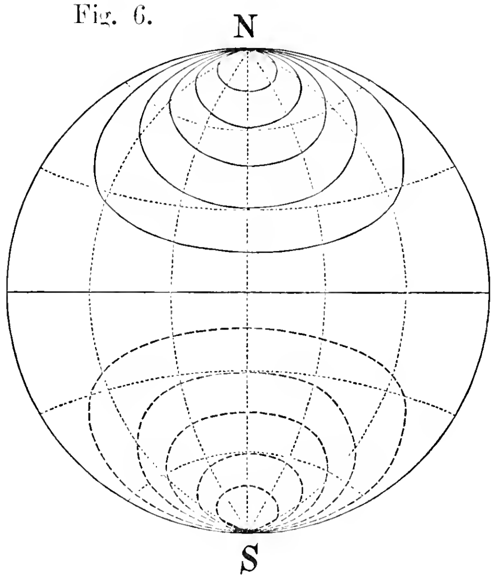
The North Component X′ vanishes along the nodal line

$$\cos(\lambda-\lambda_0)\,\mathrm{tg}\,\varphi=\mathrm{tg}\,\varphi_0$$

It is the locus of points where the circles of equal horizontal force touch the meridian arcs, and consists of a pair of spherical ellipses, one through the pericenter and its nearest geodetic

pole, and the other through the antipode and its nearest pole. Their form is independent of the depth or height of the source, being determined solely by the co-ordinates of the pericenter. When the pericenter is close to either of the poles, they are nearly circles which gradually flatten until they coincide with the equator and the meridian, when the source comes to the plane of the equator.

Fig. 6.



Inside both of those ellipses, the force X' is positive and in the irregular zone between them negative. Fig. 6 is the stereographic projection of those curves for the intervals of 15° in the values of φ_0.

The West Component Y' vanishes over the meridian circle

$$\lambda=\lambda_0 \quad \text{and} \quad \lambda_0+\pi$$

this corresponds to the nodal ellipse in the case of the north component; the force is positive on the west half and negative on the east half of the surface.

The maximum and minimum of the north component are on this circle, the latitude to be found from the value of θ in (7). Those of the west component are either on the nodal ellipse or on the meridian circle which is at quadrature with that through the source, at the same distance from the pericenter as those of the north component.

The Vertical Variation of the Vertical Component $\frac{\partial Z'}{\partial z}$ is (algebraically)

Maximum at $\theta = \pi$ i.e. antipode

Minimum at $\theta = 0$ i.e. pericenter.

There is another pair of such points, namely

$$\left.\begin{aligned}&\text{Maximum at} \quad \theta = \cos^{-1}\left(\frac{R}{r} - \frac{r}{R} + \sqrt{\left(\frac{r}{R}\right)^2 - \left(\frac{R}{r}\right)^2 + 1}\right)\\ &\text{Minimum at} \quad \theta = \cos^{-1}\left(\frac{R}{r} - \frac{r}{R} - \sqrt{\left(\frac{r}{R}\right)^2 - \left(\frac{R}{r}\right)^2 + 1}\right),\end{aligned}\right\} \quad (11)$$

the maximum is possible for all positive values of r within

$$\sqrt{\tfrac{1}{2}(\sqrt{5}-1)}\ R < r < \infty \qquad (12)$$

$$(\doteqdot .78615\ R)$$

and the minimum within

$$\sqrt{\tfrac{1}{2}(\sqrt{5}-1)}\ R < r < R$$

At the lower limit the two values coincide at

$$\theta = \cos^{-1}\left(1/\sqrt{\tfrac{1}{2}(\sqrt{5}-1)} - \sqrt{\tfrac{1}{2}(\sqrt{5}-1)}\right) \qquad (13)$$

$\doteqdot 60°\ 55'.8$ from the epicenter.

The variation vanishes at

$$\left.\begin{aligned}&\pm\theta = \sin^{-1}\sqrt{\frac{2}{3}}\ \frac{R}{r} - \sin^{-1}\sqrt{\frac{2}{3}} \qquad \text{source}\begin{cases}\text{above}\\ \text{below}\end{cases}\\ &\text{and} \qquad \theta = \pi - \sin^{-1}\sqrt{\frac{2}{3}}\ \frac{R}{r} - \sin^{-1}\sqrt{\frac{2}{3}}\end{aligned}\right\} \quad (14)$$

This is possible for all positive values of r within

$$\sqrt{\frac{2}{3}}\ R (\doteqdot .81650 R) < r < \infty \quad ; \qquad (15)$$

at the critical value of r the two circles coincide with that of the maximum variation at

$$\theta=\frac{\pi}{2}-\sin^{-1}\sqrt{\frac{2}{3}}\doteqdot 35°\ 15'.9 \quad \text{from the epicenter.} \tag{16}$$

When the depth of the source is small, neglecting the curvature of the surface as before, the first of (3) takes the form

$$\frac{\partial Z'}{\partial z}=-\frac{m}{D^3}(3\cos^5\varsigma-\cos^3\varsigma) \tag{17}$$

D being the depth of the source and ς the same as before; this holds either for the source above or below, D and $\cos\varsigma$ changing sign at the same time. The variation is now maximum at $\varsigma=\mathrm{tg}^{-1}2$, and vanishes at $\varsigma=\mathrm{tg}^{-1}\sqrt{2}\doteqdot 54°\ 44'.1$ and $\frac{\pi}{2}$.

The effect can be described in words as follows (see Fig. 7 below):—Suppose at first the source to be placed at the center of the sphere, the vertical variation of the vertical component arising from it will be uniform all over the surface being $-\frac{2m}{R^3}$. Now displace it along any particular line through the center, the upward decrease will be greatest at the epicenter and least at the antipode: as it recedes further from the center, the maximum and minimum will become more and more pronounced, and when the source reaches the critical depth of about 0.21 R, a new set of maximum and minimum will begin to appear at the angular distance of 60°.9 from the epicenter. After this value is passed there will be two circles on the sphere, on one of which the decrease is less and on the other greater than any values in their neighbourhoods. As the depth becomes still less, the place of least decrease will be shifted toward the epicenter becoming more and more prominent, and the minimum toward the antipode becoming more and more smooth; and

when the depth of about 0.18 R is reached, the value of the maximum becomes zero at about 35° ¼ from the epicenter. Beyond this limit, there will be two circles on which the variation vanishes with a circle of maximum variation between them. The surface is now divided into three regions by those circles; on the epicenter and antipode sides the force will decrease upward, but in the middle zone it will *increase upward*, the effect due to the change of direction accompanying the increase of height being greater than the opposite effect due to the increase of distance. In this zone, if the variation of vertical force alone be considered, it would appear as if there lies a disturbing source of opposite kind below.

As the source approaches closer to the surface, the circle of no variation on the epicenter side as well as that of the maximum variation will shrink round that point, while the circle of the minimum variation fades toward the antipode. The other circle of no variation takes the assymptotic position at 70° ½ from the epicenter, dividing, in the limit, the spherical surface into two parts, the region of upward increase on the epicenter side, and the region of upward decrease on the antipode side.

When the source is above the level, the vertical force still *decreases upward* in regions directly below the source. This apparent paradox will be easily cleared, if we reflect that when the positive source is below the level, the force is in positive sense being directed upward, and it decreases in positive sense: but, when it is above, the force is in negative sense, being directed downward, and the upward increase of this negative force is algebraically equivalent to a decrease of positive force. Were there no other magnetic force except that due to the disturbing source such as now described, it may be an easy matter to tell

which way the source lies by observing the vertical force and its vertical variation at the place: but when the effect is superposed with a larger field of force as usually the case is, what is now described in algebraic sense will happen in arithmetical sense, and it will be impossible to decide, from the variations of vertical component alone, which way the seat of that field lies, unless we have some means of separating the two effects.

The succession of various states of the distribution of vertical variation on the sphere, as the source recedes from it, is reversed essentially in similar way to that which was observed when it approached the surface from below, only reduced in magnitude.

When the height of the source is small, the circle of no variation and that of maximum variation will be found close to the subcenter, the other circle of no variation being found in the neighbourhood of 70° ½ from the subcenter dividing the surface into three regions as before. The circle of minimum variation is now wanted, being confounded with the ill-defined maximum at the antipode.

As the source recedes further from the sphere all those places of demarkation will be shifted toward the antipode, the maxima and minima becoming less and less distinct, the variation itself subsiding in assymptotic decay. The limiting positions of the circles of no variation are 54° ¾ and 135° ¼ from the subcenter and that of the greatest variation 90° from the same point.

The Variation of the Horizontal Component

$$\frac{\partial H'}{\partial z} = -3m\frac{r\sin\theta(R-r\cos\theta)}{\rho^5}$$

vanishes always at $\theta = 0$ i.e. pericenter

and $\theta = \pi$ i.e. antipode.

When the source is above, it vanishes also at

$$\theta=\cos^{-1}\frac{R}{r},\ \text{the nodal circle of the vertical force.}$$

$$R< r <\infty$$

always changing sign at those points. The maximum and minimum are given by roots of the cubic equation

$$\cos^3\theta+\left(2\frac{r}{R}-\frac{R}{r}\right)\cos^2\theta-\left(4+\left(\frac{R}{r}\right)^2\right)\cos\theta+\left(4\frac{R}{r}-\frac{r}{R}\right)=0. \qquad (18)$$

When $0< r <R$

there is only one possible value of θ which gives maximum value of the variation, the angle lying between 0 and $\frac{\pi}{2}$.

When $R< r <\infty$

there are two possible values of θ; the smaller angle gives the maximum and the larger minimum; the value are 0 and π when $r=R$, and tends to $\frac{\pi}{4}$ and $\frac{3\pi}{4}$ for large values of r.

When the depth is small, neglecting the curvature and putting D for the depth as before, the second of (3) becomes

$$\frac{\partial H'}{\partial z}=-\frac{3m}{D^3}\sin\varsigma\cos^4\varsigma \qquad (19)$$

which is maximum at $\varsigma=\text{tg}^{-1}\frac{1}{2}$ or at a distance of half the depth from the epicenter measured on the surface.

In words, suppose the source is placed at the center of the sphere, there is no horizontal force and no variation all over the surface; displace it slightly, the horizontal force decreases upward at every point of the sphere except at the epicenter and antipode where it vanishes, and greatest in the vicinity of the great circle midway between these points. As the source recedes further from there, the circle of the greatest upward decrease shifts in

the same direction becoming more and more pronounced until it touches the source at the surface where the variation will be indefinitely great.

When the source is above the level, the variation changes sign on the subcenter side, and the force *increases* upward, while on the antipode side it decreases as before: the circle of no variation being the same as the nodal circle of the vertical force. When the height of the source is small, the maximum is close to the subcenter and the minimum to the antipode from where they expand, as the source rises, approaching the assymptotic positions 54° ¾ from either of the extreme points; the circle of no variation begins at the subcenter and tends to bisect the sphere in the limit.

If the horizontal force is resolved along any given directions in the horizontal plane, the magnitude of the variation will change in the same ratio as its respective components. Taking components along the cardinal directions as before we have

$$\left.\begin{aligned}\frac{\partial X'}{\partial z}&=-\frac{-3mr\left\{R-r[\sin\varphi\sin\varphi_0+\cos\varphi\cos\varphi_0\cos(\lambda-\lambda_0)]\right\}}{\left\{R^2+r^2-2rR[\sin\varphi\sin\varphi_0+\cos\varphi\cos\varphi_0\cos(\lambda-\lambda_0)]\right\}^{\frac{5}{2}}}\times\\&\qquad\qquad[\cos\varphi\sin\varphi_0-\sin\varphi\cos\varphi_0\cos(\lambda-\lambda_0)]\\\frac{\partial Y'}{\partial z}&=-\frac{3mr\left\{R-r[\sin\varphi\sin\varphi_0+\cos\varphi\cos\varphi_0\cos(\lambda-\lambda_0)]\right\}}{\left\{R^2+r^2-2rR[\sin\varphi\sin\varphi_0+\cos\varphi\cos\varphi_0\cos(\lambda-\lambda_0)]\right\}^{\frac{5}{2}}}\cos\varphi_0\sin(\lambda-\lambda_0).\end{aligned}\right\}(20)$$

The Variation of the North Component always vanishes on the nodal ellipse. When the source is below the level, the space inside both of those ellipses is the region of upward decrease of the north component, and the outside zone that of upward increase.

When the source is above, the variation vanishes besides on

the nodal circle of the vertical force, on the subcenter side of which the sign of the variation is to be changed. If the nodal circle does not cut the ellipse, the whole space inside the ellipse on the subcenter side becomes region of upward increase and that between the ellipse and the circle that of upward decrease, the rest remaining the same; if it cuts the ellipse, the space within it as well as that of the zone is divided into two regions; if it touches the ellipse at all, it must touch it at the pole, when the discontinuity at the point becomes a cusp.

The Variation of the West Component vanishes all over the meridian whose plane passes through the source. When the source is above, its sign within the nodal circle is to be changed, as in the case of the north component, dividing the surface into four regions of alternately positive and negative variations.

The maximum and minimum of the variations of the north component, are on the meridian circle whose plane contains the source, and those of the west component either on the nodal ellipse or the meridian which is at quadrature with the above.

Tables XXVI and XXVII give the values of those vertical variations for several values of r/R, m and R being taken as unity; and Figs. 7 and 9, their graphs in polar co-ordinates; the values are positive outward and negative inward from the circumference of the circle which represents a section of the sphere through the source. This method is adopted for the easy apprehension of the various positions on the sphere although it has the disadvantage of making the positive and negative magnitudes appear unsymmetrical on account of the convergence of the radial lines. Figs. 8 and 10 are the same for the case of the plane surface.

TABLE XXVI.

Values of $\frac{\partial Z'}{\partial z}$ for Various Values of $\frac{r}{R}$; $m=1$, $R=1$.

θ	$\frac{r}{R}=0.5$	$\frac{r}{R}=\sqrt{\frac{\sqrt{5}-1}{2}}$ $=.78615$	$\frac{r}{R}=\sqrt{\frac{2}{3}}$ $=.8165$	$\frac{r}{R}=0.85$	$\frac{r}{R}=0.9$	$\frac{r}{R}=1$	$\frac{r}{R}=2$
0°	− 16.00	− 204.50	− 323.68	− 592.59	− 2000.00	− ∞ 0 + ∞	− 2.00
10°	− 14.02	− 65.16	− 68.50	− 60.96	− 5.26	+ 184.51	− 1.52
10° 23′.2					0		
14° 06′.5					+ **14.89**		
19° 07′.5				0			
20°	− 9.93	− 8.67	− 4.78	+ 0.651	+ 9.75	+ 21.74	− 0.629
24° 44′.5				+ **1.67**			
30°	− 6.35	− 1.48	− 0.153	+ 1.33	+ 3.33	+ 5.76	− 0.025
30° 38′.4							0
35° 15′.9			**0**				
40°	− 4.04	− 0.555	− 0.046	+ 0.481	+ 1.16	+ 2.04	+ 0.210
47° 12′.0							+ **0.241**
50°	− 2.70	− 0.441	− 0.202	+ 0.039	+ 0.348	+ 0.769	+ 0.238
51° 24′.3				0			
60°	− 1.92	− 0.433	− 0.301	− 0.168	+ 0.003	+ 0.250	+ 0.192
60° 08′.5					0		
60° 55′.8		− { **0.433** / 0.433 }					
70°	− 1.47	− 0.431	− 0.348	− 0.265	− 0.156	+ 0.009	+ 0.133
70° 31′.8						0	
80°	− 1.19	− 0.425	− 0.367	− 0.309	− 0.233	− 0.113	+ 0.079
90°	− 1.00	− 0.415	− 0.372	− 0.328	− 0.270	− 0.177	+ 0.036
100°	− 0.877	− 0.403	− 0.369	− 0.334	− 0.288	− 0.212	+ 0.003
101° 10′.2							0
104° 47′.4				− 0.335			
120°	− 0.725	− 0.381	− 0.357	− 0.332	− 0.298	− 0.241	− 0.039
123° 12′.2					− 0.298		
140°	− 0.645	− 0.365	− 0.344	− 0.324	− 0.296	− 0.249	− 0.061
160°	− 0.605	− 0.354	− 0.336	− 0.318	− 0.293	− 0.250	− 0.071
180°	− **0.593**	− **0.351**	− **0.334**	− **0.316**	− **0.292**	− 0.250	− 0.074

Numbers in black types are maxima, those in small types minima.

TABLE XXVII.

Values of $\frac{\partial H'}{\partial z}$ for Various Values of $\frac{r}{R}$; $m=1$, $R=1$.

θ	$\frac{r}{R}=0.5$	$\frac{r}{R}=\sqrt{\frac{\sqrt{5}-1}{2}}$ 0.78615	$\frac{r}{R}=\sqrt{\frac{2}{3}}$ =0.8165	$\frac{r}{R}=0.85$	$\frac{r}{R}=0.9$	$\frac{r}{R}=1$	$\frac{r}{R}=2$
0°	0	0	0	0	0	$-\infty$ 0 $+\infty$	0
3° 3'.9					−824.53		
4° 45'.5				−238.77			
5° 59'.1			−128.33				
7° 8'.4		−79.89					
10°	−3.65	−72.28	−100.75	−140.48	−197.74	−49.18	+0.871
17° 24'.9							**+1.07**
20°	−5.07	−28.46	−30.74	−31.82	−29.47	−12.25	+1.05
21° 34'.6	−5.09						
30°	−4.65	−11.31	−11.20	−10.74	−9.42	−5.41	+0.751
40°	−3.65	−5.48	−5.29	−5.00	−4.43	−3.01	+0.396
50°	−2.71	−3.11	−2.98	−2.82	−2.53	−1.90	+0.158
60°	−2.00	−1.96	−1.88	−1.79	−1.63	−1.30	0
70°	−1.49	−1.34	−1.28	−1.22	−1.13	−0.933	−0.071
80°	−1.12	−0.956	−0.920	−0.879	−0.817	−0.695	−0.100
90°	−0.859	−0.708	−0.683	−0.655	−0.612	−0.530	−0.107
100°	−0.664	−0.537	−0.518	−0.498	−0.469	−0.411	−0.103
120°	−0.401	−0.317	−0.307	−0.296	−0.280	−0.250	−0.080
140°	−0.231	−0.181	−0.176	−0.170	−0.162	−0.145	−0.053
160°	−0.106	−0.083	−0.081	−0.078	−0.074	−0.067	−0.026
180°	0	0	0	0	0	0	0

Numbers in black types are maxima, those in small types minima.

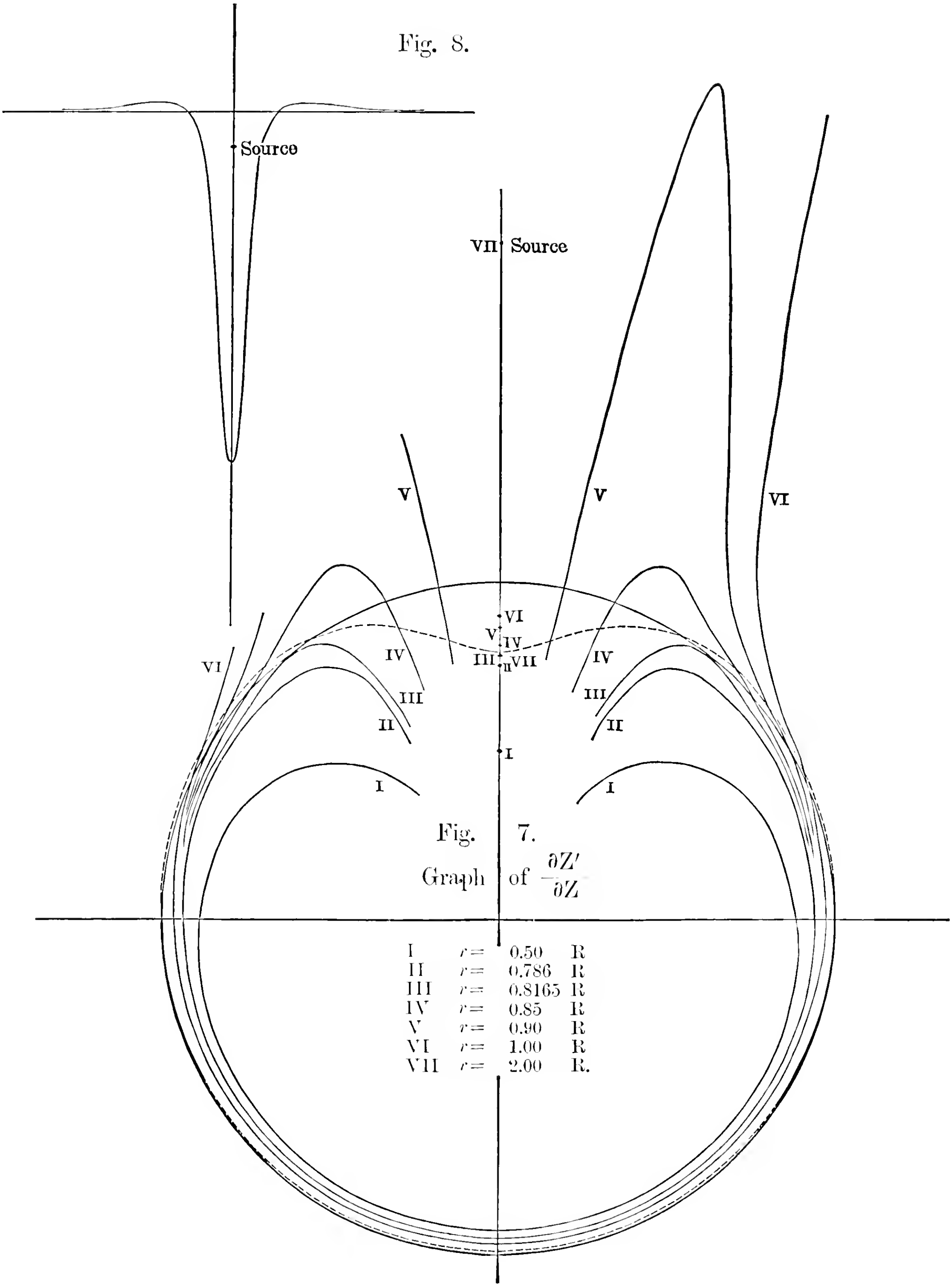


Fig. 8.

Fig. 7. Graph of $\frac{\partial Z'}{\partial Z}$

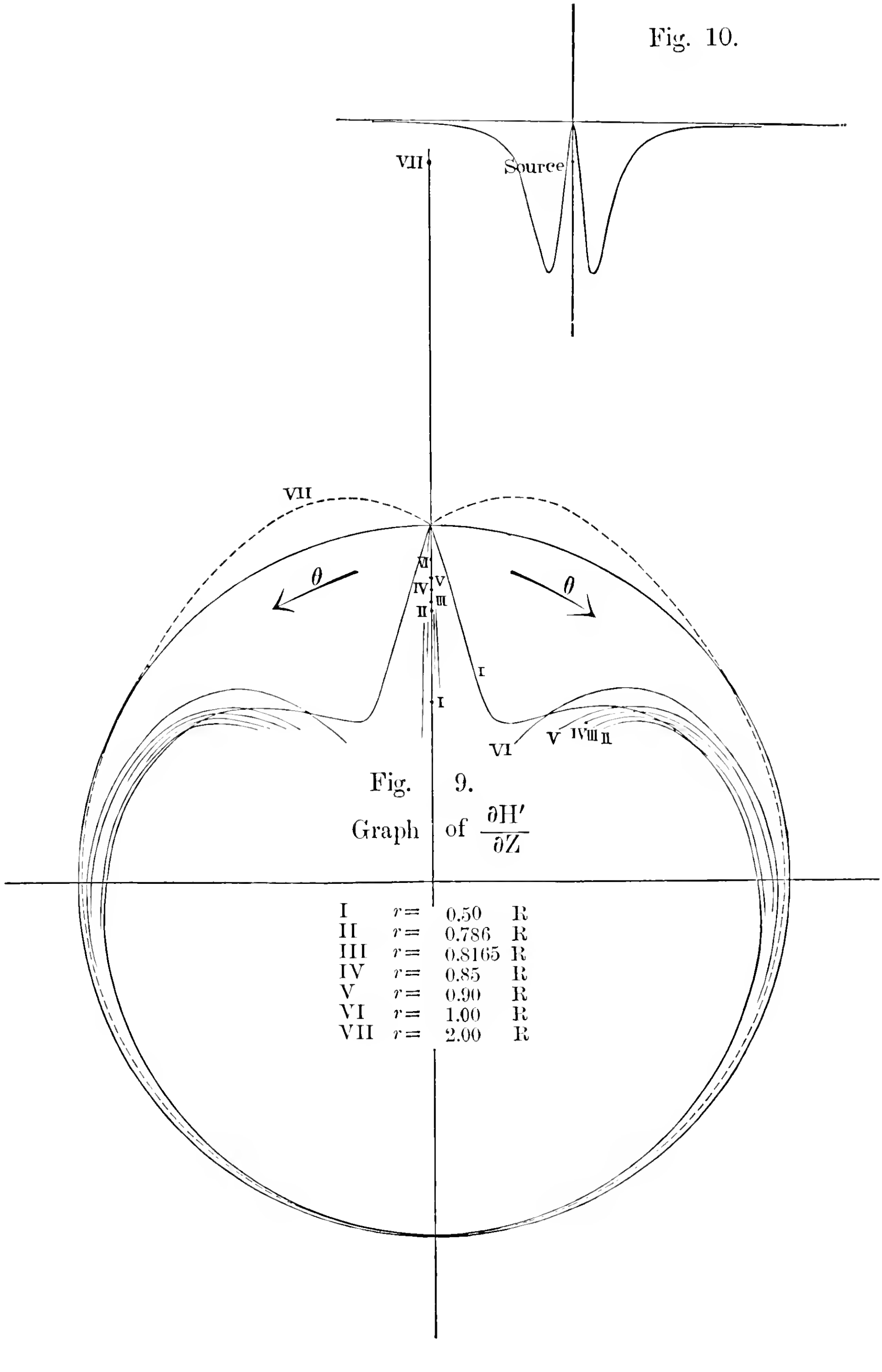


Fig. 10.

Fig. 9. Graph of $\frac{\partial H'}{\partial Z}$

Location of Magnetic Image from Vertical Variations of the Observed Magnetic Elements.

The simplest case now discussed can be applied to sources of finite extent if its distribution of magnetism is centrobaric, or to cases where it can be represented by finite number of images by mere addition of the rectangular components above given. Any other distribution whose potential is known in finite form can also be treated in similar manner.

If the potential is expanded in harmonic series, no matter how far that expansion be carried, its application to the variation of the force in neighbourhood of the source will be utterly untenable, unless the distribution be such as can be exactly represented by finite number of terms. The presence of minute ripples in the imitation of known curves by 80 harmonics worked out with Michelson's analyser shows us to what danger we are exposed in similar cases.*

As we recede from the source, however, the higher harmonics tend to vanish in the well known way, approaching more and more nearly to be centrobaric as the distance of the source becomes great compared with its extent. If the distribution is not extravagantly irregular, a few number of images properly disposed will give a fairly good approximation at tolerable distances from it. A pair of positive and negative images of equal strength will give the effect of a simple magnet. When its length is short (1) and (3) may be differentiated with respect to its axis and the strength of pole m replaced by the magnetic moment.

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* Phil. Mag. Vol. XLV, Fifth Series Pl. XII to XVII.

If the poles be of unequal strength, the excess of the stronger over the weaker only will be felt at great distances. Such a magnet of an apparently odd pair of poles may be produced by local heterogeneity of magnetization in a body like the earth, one pole being concentrated at a place and the other widely spread out over the rest, when the effect of the former can be represented by a single image for approximate purpose. The same will also be the case when the length of the magnet is excessively long, compared with the region through which the disturbance is considered.

Turning to Table XXI p. 135, we observe that in Japan there is a close coincidence of the vertical variations of the north and upward components with $-3h/R$ times the respective forces, but we are struck by a remarkable discrepancy in those of the west component. It stands so peculiar among those of the other components that some arithmetical error was suspected, and the calculations were examined repeatedly through, till a thought occurred that the effect might be due to the presence of the continent on the west; the extent of that effect throughout the whole country showing that the origin of the disturbance is likely to be found at some distance.

Assuming then that a large part of the disturbance can be represented by a simple magnetic image, we are much helped by the presence of a few points of demarkations in the country in locating its position. Taking for the first approximation, those variational anomalies to be the variations $\frac{\partial X'}{\partial z}$, $\frac{\partial Y'}{\partial z}$, $\frac{\partial Z'}{\partial z}$ given above for a simple source, we notice that the sign of $\frac{\partial X'}{\partial z}$ changes in middle of the country between III and IV, while that of $\frac{\partial Y'}{\partial z}$ remains the same. Hence it seems that we are crossed by one of the nodal ellipses; the fact is further

confirmed by the large variations of the west component which has its maximum value on that curve: two points of this curve, if accurately known, are sufficient to assign the line through the image and the earth center by (10).

Again $\frac{\partial Z'}{\partial z}$ changes sign in the North Japan between I and II, so that one of the circles of no vertical variation of the vertical force passes also through the country. This assigns at once the maximum limit to the depth of the image, 0.1835 times earth radius by (15).

The vertical variations of the rectangular components of the horizontal force being resolved in the same ratio as the forces themselves, the plane of the great circle whose azimuth is determined by considering these variations as vectors, will pass through the image provided there is such in existence; and since their signs are contrary to those of the forces when the image is below, and the same within the nodal circle of no vertical force when it is above; we can determine the sense of the force and hence the sign of m when the position of the image is known. From the first and second rows of differences in Table XXI those azimuths are

I.	II.	III.	IV.	V.
96.°3	96.°3	96.°3	85.°3	83.°4

measured in the direction north-west-south-east.

Great circles drawn in those azimuths through each of the points, give twenty points of intersections, ten of which lie in Asia and the other ten about South America. In order to save arithmetical labour for the rough work, those circles were layed on a large terrestrial globe of 30 inches diameter which was carefully covered all over with flexible Japanese tracing

paper.* The coordinates of the points of intersections of the first ten are

			Long.	Weights	Lat.	Weights.
I	and	II	72° W.	.001	7° N.	.001
I	,,	III	68	.003	3	.047
I	,,	IV	109	.013	35	.184
I	,,	V	107	.012	33	.110
II	,,	III	62	.002	−1	.003
II	,,	IV	122	.015	35	.493
II	,,	V	117	.011	33	.544
III	,,	IV	131	.021	35	2.747
III	,,	V	124	.013	33	.662
IV	,,	V	81	.000	28	.050
	Mean		116°.3 W.		34°.0 N.	

Those coordinates have very different weights depending upon the angles at which the circles cross each other, and upon the probable errors of the azimuths. Supposing the latter to increase with the distance from the middle of the country, as already discussed under the mean isomagnetics, it is taken to be 1 for the point III, 2 for II and IV, and 3 for I and V; and the weight of the point of intersection of any two circles is taken inversely proportional to the sum of squares of their azimuth errors and directly as the square of the sine of the angle at which they cross each other. The weights of the longitude and latitude are resolved parts of the weights so found.

There was no appreciable improvements by restoring the last figures of those coefficients which were cut off in the table above

* To draw those circles on the globe through the points, the rotation axis was inclined to the horizon circle at an angle $\sin^{-1}$ ($\cos \varphi \sin A$) and by rotating the globe the point is brought to the plane of the horizon circle which is then the circle required.

as uncertain: undoubtedly the very crude nature of the result is due both to noncentrobaric distribution, and probably more to the slenderness of the data.

Fig. 11.

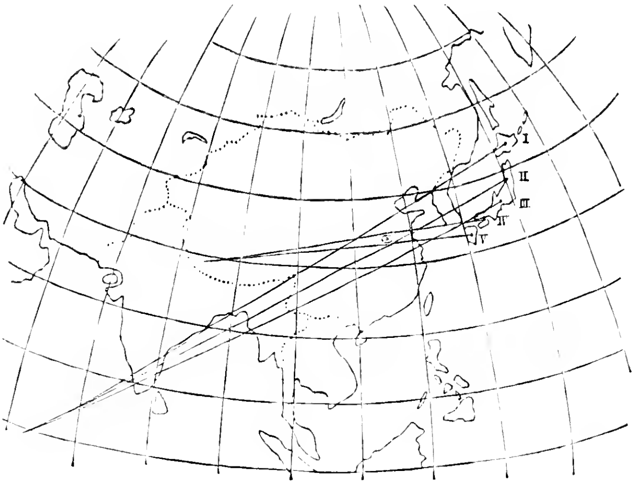


Fig. 11 is the reproduction of those arcs, from which we see that, notwithstanding the widely scattered distribution of the points of intersections, the arcs all pass through the region within a few degrees of the mean co-ordinate, apparently showing the feasibility of the assumption.

The angular distances of the five points from this mean point of intersection, or the values of θ are

I.	II.	III.	IV.	V.
22.°2	19.°7	17.°6	14.°5	12.°3

The point of no vertical variation is about 20.°5 by interpolation. This excludes the possibility of the point being an antipode by the second of (14) which shows that there can be no such circle within 54°¾ of that point, so that the position of the image must be given by either

$$r=\sqrt{\frac{2}{3}}\ \frac{R}{\sin(54.°7+20.°5)}=.844\ R$$

or a depth of about 992 kilom. if the point be an epicenter.

$$\text{or}\ r=\sqrt{\frac{2}{3}}\ \frac{R}{\sin(54.°7-20.°5)}=1.453\ R$$

or a height of about 2890 kilom. if the point be a subcenter.

Taking the latter value, we are wholly within the nodal circle of no vertical force which will be about 46.°5 from the pericenter, and therefore the horizontal force H′ must be of the same sign as its vertical variation, that is, the upward decrease of the west components found in the variational anomalies must be looked upon as upward increase of eastward forces diverging from the pericenter, and consequently the image must be positive. This contradicts however the observed positive values of the variations of the vertical component on the west and its negative value on the east. The image must therefore be below the surface and negative in sign, and the horizontal force H′ must be considered as converging toward the point, that is negative calculated in the sense of increasing θ, and its vertical variation positive; or practically there must be an upward increase of eastward force, or decrease of westward force which is just what is found.

We may next find the zenith distances ζ of the forces from (3) by eliminating m and ρ, thus,

$$\zeta=\frac{1}{2}\left\{\operatorname{tg}^{-1}\frac{1}{p}\pm\sin^{-1}\frac{1}{3\sqrt{1+p^2}}+n\pi\right\}$$

p being the ratio $\frac{\partial Z'}{\partial z}\Big/\frac{\partial H'}{\partial z}$, the sign of the second term and the value of n depending upon r and θ. Confining the inverse sines within the first quadrant, these are

within $\qquad 0 < r < \sqrt{\frac{2}{3}}\,\mathrm{R}$

$$\zeta = \frac{1}{2}\left\{\sin^{-1}\frac{1}{\sqrt{1+p^2}} + \sin^{-1}\frac{1}{3\sqrt{1+p^2}}\right\}_{0<\theta<\pi} \tag{21}$$

within $\qquad \sqrt{\frac{2}{3}}\,\mathrm{R} < r < \mathrm{R}$

$$\left.\begin{array}{l}
\zeta = \frac{1}{2}\left\{\sin^{-1}\frac{1}{\sqrt{1+p^2}} + \sin^{-1}\frac{1}{3\sqrt{1+p^2}}\right\}_{0<\theta<\sin^{-1}\sqrt{\frac{2}{3}\frac{\mathrm{R}}{r}}-\sin^{-1}\sqrt{\frac{2}{3}}} \\
\qquad\qquad \text{or} \quad \pi-\sin^{-1}\sqrt{\frac{2}{3}\frac{\mathrm{R}}{r}}-\sin^{-1}\sqrt{\frac{2}{3}} < \theta < \pi \\
\qquad\qquad \text{in either case } p \text{ is positive} \\
\zeta = \frac{1}{2}\left\{\pi - \sin^{-1}\frac{1}{\sqrt{1+p^2}} + \sin^{-1}\frac{1}{3\sqrt{1+p^2}}\right\} \\
\qquad \sin^{-1}\sqrt{\frac{2}{3}\frac{\mathrm{R}}{r}}-\sin^{-1}\sqrt{\frac{2}{3}} < \theta < \pi-\sin^{-1}\sqrt{\frac{2}{3}\frac{\mathrm{R}}{r}}-\sin^{-1}\sqrt{\frac{2}{3}} \\
\qquad\qquad \text{or} \quad \text{in the case } p \text{ negative}
\end{array}\right\} \tag{22}$$

within $\qquad \mathrm{R} < r < \infty$

$$\left.\begin{array}{l}
\zeta = \frac{1}{2}\left\{2\pi - \sin^{-1}\frac{1}{\sqrt{1+p^2}} - \sin^{-1}\frac{1}{3\sqrt{1+p^2}}\right\}\ 0<\theta<\sin^{-1}\sqrt{\frac{2}{3}}-\sin^{-1}\sqrt{\frac{2}{3}\frac{\mathrm{R}}{r}}. \\
\zeta = \frac{1}{2}\left\{\pi + \sin^{-1}\frac{1}{\sqrt{1+p^2}} - \sin^{-1}\frac{1}{3\sqrt{1+p^2}}\right\}_{\sin^{-1}\sqrt{\frac{2}{3}}-\sin^{-1}\sqrt{\frac{2}{3}\frac{\mathrm{R}}{r}} < \theta < \cos^{-1}\frac{\mathrm{R}}{r}} \\
\zeta = \frac{1}{2}\left\{\pi - \sin^{-1}\frac{1}{\sqrt{1+p^2}} + \sin^{-1}\frac{1}{3\sqrt{1+p^2}}\right\}_{\cos^{-1}\frac{\mathrm{R}}{r} < \theta < \pi-\sin^{-1}\sqrt{\frac{2}{3}}-\sin^{-1}\sqrt{\frac{2}{3}\frac{\mathrm{R}}{r}}} \\
\zeta = \frac{1}{2}\left\{\sin^{-1}\frac{1}{\sqrt{1+p^2}} + \sin^{-1}\frac{1}{3\sqrt{1+p^2}}\right\}_{\pi-\sin^{-1}\sqrt{\frac{2}{3}}-\sin^{-1}\sqrt{\frac{2}{3}\frac{\mathrm{R}}{r}} < \theta < \pi} \\
\qquad\qquad \text{In the first and third } p \text{ is negative.} \\
\qquad\qquad \text{In the second and fourth } p \text{ is positive.}
\end{array}\right\} \tag{23}$$

Applying the first and second of (22) to the values in table XXI, we get

I.	II.	III.	IV.	V.
56.°8	53.°1	49.°9	47.°5	46.°9

Fig. 12.

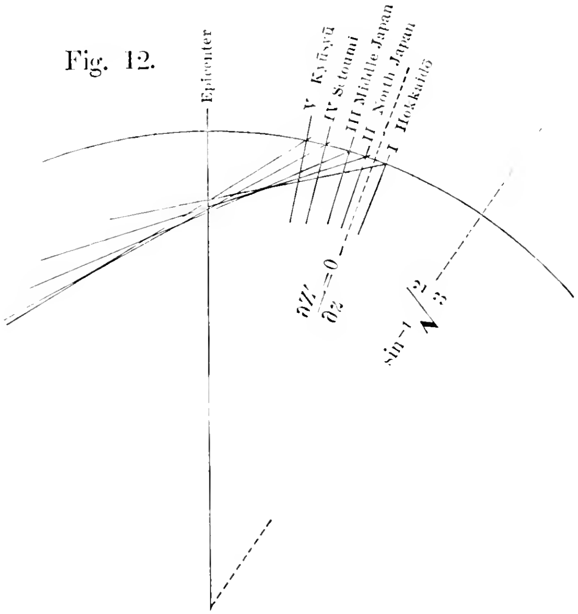


Fig. 12 shows the lines drawn with those zenith distances at each point, the different planes of θ's being made coincident by turning then about the vertical line through the epicenter. We observe that those lines form a kind of caustic which apparently converge below the epicenter found by tracing azimuths from each point.

Were there a real source below the level, the greater permeability of the earth's crust compared with that of the air, will cause magnetic refraction making the position of the image deeper than that of the source. As a trial, several values of permeabilities μ between 1 and 3 were taken and lines were drawn with increased zenith distances $\zeta'=\mathrm{tg}^{-1}(\mu\,\mathrm{tg}\,\zeta)$; but none of the values gave satisfactory focus. Though it is an easy matter to bring those lines to a focus by assigning suitable permeabilities to different layers, such an artificial procedure will be altogether a superfluous refinement with the present data.

The depths of the image as determined by the points of intersections of those lines with the vertical through the epicenter are

I.	II.	III.	IV.	V.	Mean.	
940	1030	1090	1040	950	1010	kilom.

and the distances ρ of these points from the respective points taken in the data are

	I.	II.	III.	IV.	V.	
$\rho=$	2450	2240	2070	1800	1570	kilom.

From those values and zenith distances we get by (3) the values of the strength of the image

$$m=-\frac{2\rho^3}{1+3\cos 2\zeta}\frac{\partial Z'}{\partial z}=-\frac{2}{3}\frac{\rho^3}{\sin 2\zeta}\frac{\partial H'}{\partial z}$$

	I.	II.	III.	IV.	V.	Mean.
$=$	-2.92	-1.42	-1.10	$-.94$	$-.68$	-1.41×10^{15} C.G.S. unit.

The values of m increase regularly with the values of ρ. This might be either due to systematic errors in the empirical formulæ for isomagnetics, or else to the state of distribution of magnetism being widely spread over the region under consideration.

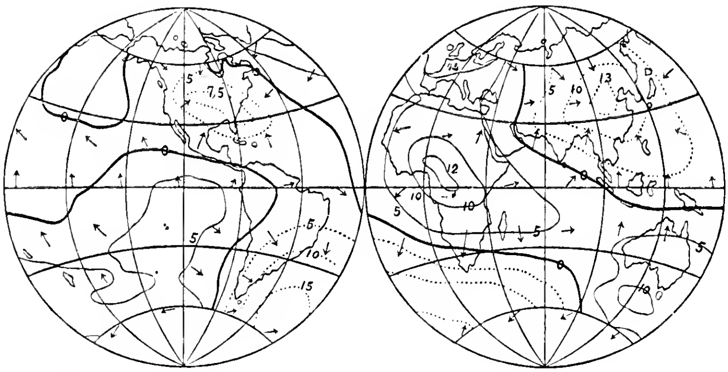
Taking the first supposition, we may adopt the mean value of m as the approximate strength of the image, which give the disturbance of the vertical field at the epicenter.

$$-\frac{1.41\times 10^{15}}{(1010)^2\times 10^{10}}=-.138 \qquad \text{C.G.S. units.}$$

Fig. 13 gives the residual intensities of the vertical and horizontal components of the terrestrial magnetic field after deducting those due to the mean magnetization, or what corresponds to

Fig. 13.

The Earth Magnetic Field after deducting the Field due to the Mean Magnetization 1885.



Full lines show equal residual upward magnetic forces, and dotted lines those of downward forces, figures indicate intensity in 1000 γ, or, .01 C.G.S. units, the arrow lines magnitude and direction of the residual horizontal forces.

the distribution represented by the second and higher harmonics in Gaussian expansion. It is reconstructed from Bauer's reduction with slight modifications as to the convension of representing those magnitudes.* We observe in this map, a center of attraction not far from the epicenter now found. Bauer gives the position of this point,

Longitude 110°E., Latitude 35°N. and the intensity of the residual vertical field −.139 C.G.S. units (*i.e.* downward).

The accidental agreement of these results, however, should not be looked upon as showing any possible existence of such a source. If this were really the case, there must be large variational anomalies in middle of China. Recent observations at a few points near this region by Sinzyō, Ōtani and Yamagawa give no indication of such :—

* Terrestrial Magnetism Vol. IV p. 44.

*	λ	φ	X	Y	Z
Hongkong	114° 10!5	22° 18!2	36837^{γ}	-207^{γ}	-22342^{γ}
Zikawei	121° 25!8	31° 11!6	32908^{γ}	1354^{γ}	-33644^{γ}
Hankow	114° 17!5	30° 35!5	33922^{γ}	716^{γ}	-33737^{γ}
Syasi	112° 14!8	30° 18!1	34112^{γ}	246^{γ}	-33673^{γ}

which give approximately at $\lambda=116.°3$ $\varphi=28.°0$

$$\frac{\partial X}{\partial z}=-17.\overset{\gamma}{}8 \qquad \frac{\partial Y}{\partial z}=-1.\overset{\gamma}{}4 \qquad \frac{\partial Z}{\partial z}=16.\overset{\gamma}{}2 \qquad \text{per kilom.}$$

$$(3h/R)X=-16.\ 3 \quad (3h/R)Y=-0.\ 2 \quad (3h/R)Z=14.\ 1$$

$$\frac{\partial X'}{\partial z}\doteqdot-\ 1.\ 5 \qquad \frac{\partial Y'}{1z}\doteqdot-1.\ 2 \qquad \frac{\partial Z'}{\partial z}\doteqdot+\ 2.\ 1 \qquad ,, \quad ,,$$

while those due to the image

$$m=-1.41\times10^{15}, \qquad \rho=1180\ \text{kilom}, \qquad \theta=6,° \quad \text{give}$$

$$\frac{\partial X'}{\partial z}=-10.\overset{\gamma}{}6, \qquad \frac{\partial Y'}{\partial z}=0.0, \qquad \frac{\partial Z'}{\partial z}=+11.\overset{\gamma}{}5 \quad \text{per kilom.}$$

differing from the observed values by more than five times.

Taking the second supposition, that the distribution is represented by varying image, we see that it is nearly proportional to the cube of the distance ρ :—

	I.	II.	III.	IV.	V.	Mean.	
$\frac{m}{\rho^3}=$	-1.96	-1.26	-1.24	-1.62	-1.75	-1.57×10^{-10}	C.G.S.

This makes m at the point $\lambda=116.°3$ E. $\varphi=28°$N.

$$-1.57\times10^{-10}\times(1.18)^3\times10^{24}=-2.58\times10^{14}\ \text{C.G.S}$$

and the variational anomalies

$$\frac{\partial X'}{\partial z}=-1.\overset{\gamma}{}9 \qquad \frac{\partial Y'}{\partial z}=0.\overset{\gamma}{}0 \qquad \frac{\partial Z'}{\partial z}=+2.\overset{\gamma}{}1$$

* Tōkyō Sugaku-buturigakkwai Hōkoku Vol. II. p. 48.

agreeing much closer with the observed values, although it reduces the residual field at the epicenter to about one-fifth of the previous value.

Treating similarly the variational anomalies in Europe given in Tables XXIII and XXV, we observe that the arcs from the five points in Austria and Hungary converge very nearly to the south west of Norway, while those from the stations in Great Britain converge towards the south east of Greenland, except the arc from the Station IX which intersects three of the arcs in south of England. This last discrepancy would seem to be due to local anomaly of the west component in the district, as is seen from Map 9 of the report of that survey, by a large number of stations in this district having disturbance toward the west compensated by a few stations in north of Wales; namely, out of 85 disturbances 53 are positive and 32 negative. The azimuth from the station IX is hence omitted.

Fig. 14.

Since those variational anomalies are affected by various disturbances of small extent as well as errors in the expressions of mean isomagnetics, we take for the first trial, one image at the mean point of intersections of the four British arcs and five Austro-Hungarian arcs, instead of two distinct images. This point comes out:—

Longitude 9.°0 W. Latitude 65.°1 N.

The vertical variation of the vertical force $\frac{\partial Z'}{\partial z}$, is negative

all over the region and increases numerically toward the mean point of intersections of these arcs, or pericenter in the nomenclature now adopted; that of the horizontal force $\frac{\partial H'}{\partial z}$ is also negative in the sense measured from the pericenter (practically southward), and is numerically maximum somewhere between the Stations I and VII in Great Britain.

The equality of signs of $\frac{\partial Z'}{\partial z}$ and $\frac{\partial H'}{\partial z}$ within the critical value of θ, $35°\frac{1}{4}$, shows that the image must be placed below the level; and their negative signs show that its sign must be positive. We thus find for each of the points taken,

		Azimuth N. to W.	θ	Zenith Dist. ζ	Dep. of Image kilm.	Dist. of St. fr. Image ρ kilm.	Strength of Image m	$\frac{m}{\rho^3}$
Great Britain	I	11.°3	8.°9	15.°8	2230	2380	1.74	1.29
	III	11. 3	12. 2	26. 1	1850	2180	1.33	1.28
	V	7. 1	11. 2	27. 1	1670	1980	1.02	1.32
	VII	9. 5	14. 4	25. 6	2070	2450	1.53	1.04
	IX	18. 4	13. 7	28. 0	1870	2270	1.49	1.27
Austria and Hungary	I	26.°6	19.°9	32.°6	2040	2730	2.36	1.16
	II	19. 6	24. 3	44. 9	1550	2810	2.19	.99
	III	30. 1	24. 0	36. 6	2010	2980	2.56	.97
	IV	47. 7	23. 4	33. 2	2180	3020	3.25	1.18
	V	34. 6	27. 6	43. 6	1710	3110	3.16	1.05
				Mean	1918 kilm.		2.06×10^{15} C.G.S.	1.16×10^{-10} C.G.S.

Figs. 14 and 15 show these azimuths and zenith distances. This value of mean depth makes the value of $\frac{r}{R} \doteq 0.7$ which gives by (18) the circle of minimum variation (numerically maximum) of the horizontal force $\frac{\partial H'}{\partial z}$ at 11.°2 from the epicenter; it passes therefore through the north of England and Ireland, roughly agreeing with the observed position.

The disturbance of the vertical field at the epicenter is

$$\frac{2.06\times10^{15}}{1918^2\times10^{10}}=.056 \text{ C.G.S. unit upward.}$$

or if we take the image to vary as the cube of the distance of the stations

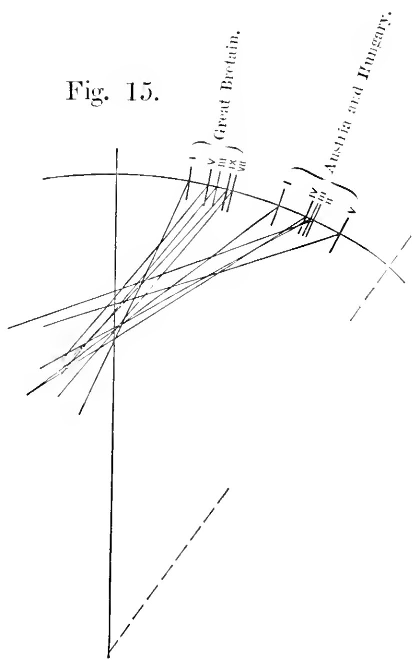
$$1.16\times10^{-10}\times1918\times10^5=.022 \text{ C.G.S. unit upward.}$$

From the five Austro-Hungarian stations only, we get the epicenter at

Longitude 7.°3 E,
Latitude 57.°9 N.

The mean value of m is $.732\times10^{15}$ C.G.S. unit at a mean depth of 1328 kilometers, giving disturbance at the epicenter .042 or .014 C.G.S. units upward, according as the strength of the image is taken to be constant or to vary as the cube of distance of stations.

Fig. 15.



The four British stations give epicenter at

Longitude 16.°6 W. Latitude 73.°3 N.

The mean of five values of image is 4.02×10^{15} C.G.S. at a mean depth of 2634 kilometers, giving vertical disturbance at the epicenter .058 or .033 C.G.S. units upward, according as the strength of the image is taken to be constant, or to vary as the cube of distance of stations.

Bauer gives the maximum disturbance of the vertical field near Shetland Islands to be .1061 C.G.S. units upward at the point, Longitude 0°, Latitude 60° N. Either of the values now found come much short of that amount.

Were the data and the assumption sufficiently reliable, we might have proceeded to the second and further approximations by taking account of the disturbing forces in the observed values of X,Y,Z. For the present, we content ourselves with the result that the variational anomalies in Japan show an excessive distribution of negative magnetism above the mean value in the east of Asia, and those in Austria-Hungary and Great Britain that of positive magnetism in north west of Europe, similar to those shown by the higher harmonics in Gaussian expansion.

Strictly speaking, the mode of distribution of the magnetism must remain perfectly indeterminate as long as we adhere solely to the observed elements, there being an infinite variety of ways to fulfil those values; and inasmuch as the surface integral of the force over the earth vanishes, the so called seat of action may be placed either inside or outside.

It is often erroneously believed that the expansibility of the earth magnetic potential in negative powers of the radius vector is a proof that the source of action is inside the earth. To say nothing of the possible magnetization of the surrounding medium, such is no proof even from the pure theory of action at a distance. To turn the subject into hydrokinetic analogy, a circulation very similar to the lines of force in the earth magnetism can be produced in frictionless liquid of infinite extent, by initial pressure applied over any singly connected surface of finite or infinite extent with a circular hole. The imitation can be made closer by taking several such surfaces instead of but one. Imagine a spherical

net of infinitely thin thread to be placed symmetrically with respect to the circulation; microbes living on the net may find that the velocity of the fluid on different parts of the net can be expressed very approximately by a function of descending powers of the radius vector, but they have no right to assert thereby, that the flow must have been produced by a piston or pistons inside the globe. If some of the bold animalcules make an adventurous expedition inside the net in search of the cause of the circulation, they may be perfectly disappointed to find no trace of pistons ever having been there. To make this a magnetic problem, we have only to substitute a double sheet of attracting and repelling matter for the surface where the initial pressure is supposed to have been exerted.

The question of the seat of action, must be sought by considering physical circumstances, analysis can not settle it, for the simple reason of the vanishing of the surface integral, unlike that in the case of gravity or electrostatics. It is difficult to understand, how some magneticians have come to conclusions with regard to the seat of action from mere observations on the earth surface. Of course there is the common sense judgment without going into logical process; but that is no proof. We may take two convergent series one for an internal and another for an external distribution at the upstart, as Gauss did, and comparing the coefficients with observed values, find that they fit very nearly with the former. But the converse of this may or may not be true as just shown.

It is curious that the rigorous mathematician, while discussing the possibility of the existance of the atmospheric current, and after enunciating the admirable theorem with regard to magnetic shells, confines his attension to the coefficients of scaler potential

whose convergence or divergence has nothing to do with the "sitz" of action.* The indeterminateness of the problem in the general case, is fully considered in Article XXVIII of Sir William Thomson's Reprint of Papers on Electrostatics and Magnetism, of which the present is a particular case.

The image must therefore be taken in literal sense, no pretension whatever being made as to the physical reality of either its strength or position, except that the variational anomalies can be partly accounted for by numerical calculations performed on certain number of constants and variables. We must also bear in mind, that the electric current in the atmosphere is entirely neglected in the calculation; for if the intensity of such current is greater than 0.1 Amperes per square kilometer, the above result will be materially affected.

The great depths of the images now found are just as might be expected, for were they within a few kilometers from the surface and of the sizes above given, an enormous number of terms will be required in Gaussian expansion even for an approximate representation. The comparatively small depth of the Asiatic image might account for the differences spoken of in § 10 p. 37 above.

The writer regrets not to have access to a valuable work of Paul Passalskij, who, according to Leyst, seems to have treated similar subject from harmonic analysis point of view. Section 12 is signed Aug. 7th. 1900 Mitake, and was read to the Physico Mathematical Society of Tōkyō on Sept. 29th. of that year. The main features of the present section were only qualitativly refered to and are now worked out for the report.

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* Gauss Gesammelt Werke Bd. V p. 171.

§ 14. DISTURBING FORCES.

The differences of the observed and calculated values of rectangular components given in Table XV, under the headings ΔX, ΔY, ΔZ are taken to be those of the disturbing force at a place, following the plan of Profs. Rücker and Thorpe. The resulttant force $=\sqrt{\Delta X^2+\Delta Y^2+\Delta Z^2}$, its asimuth and altitude are given in following columns of the same table. By way of control these elements were calculated from the differences of observed and calculated values of declination, dip and horizontal intensity in Table XIV by the formulæ

$$\Delta X = \cos\delta\,\Delta H - H\sin\delta\,\Delta\delta$$
$$\Delta Y = \sin\delta\,\Delta H + H\cos\delta\,\Delta\delta$$
$$\Delta Z = \mathrm{tg}\,\theta\,\Delta H + \sec^2\theta\,H\,\delta\theta$$

giving results which agreed very closely with the former, except in cases of extravagant differences such as those obtained in Huzi and Asama.

In Map 10 the horizontal components of the disturbing forces $\sqrt{\Delta X^2+\Delta Y^2}$ are represented in magnitude and direction by black lines with arrow heads starting from each station. In a few places where the determination of the declination fails, the magnitude of the difference of the observed und calculated values of the horizontal intensity $\Delta H (\doteqdot \Delta X)$, is indicated by vertical lines without arrow heads extending both ways through the point. The vertical component ΔZ is represented by a blue or red line according as its direction is downward or upward. The scale of intensity is 1 mm. for 100 γ or 0.001 C.G.S. unit of magnetic force for either component.

Since the results of observations are subject to various sources of errors, and the empirical expressions of mean isomagnetics can never be exact representatives of magnetic state of the whole country, the disturbing forces calculated as above are attended with greater uncertainty than the magnetic elements themselves. Hence much discretion is required in drawing any inference from them.

We have seen that the mean probable errors of a single observation are $\pm\, 6.'46$, $\pm\, 5.'47$, $\pm\, 73.^{\gamma}2$, for declination, dip and horizontal intensity, while those of the calculated values depend upon the co-ordinates of stations, amounting in extreme cases to more than double the above magnitudes. As already remarked, however, those probable errors are rather due to the disturbing forces themselves than to errors of observations ; it would seem that they can be more relied upon than is indicated by the sole assumption of promiscuous occurrance of errors in the applied method of least squares. The directions of those disturbing forces are still more uncertain than their intensities, especially in places where they are small, in the extreme case of which they become altogether indeterminate.

Distribution of these forces in different regions, when the stations are taken in sufficient number to represent the main characteristics, can not fail to be of interest for the physics of the earth's crust. As they now stand, it is difficult to co-ordinate them with anything like satisfaction. The rapidity with which they vary from place to place, as is seen in the neighbourhood of Huzi and Asama (see Map 10), shows us what a rough approximation we come to by simple interpolation or inspection. Crude as they are, they may be better than nothing, and when studied in connection with collateral facts and interpreted with proper

precaution, may lead us to thoughts with regard to tectonic conditions which might otherwise lie too hidden for our mental sight.

The above cited English magneticians have inaugurated a convenient nomenclature to designate various groups of disturbing forces; according to them, a place is called a magnetic ridge or peak when disturbing forces converge towards it, and a valley when they diverge from it. In land topography an eye estimate is of great help: even from a few barometric determinations of heights on prominent points, a fairly approximate set of contour lines can be drawn in this way. In magnetic survey we are utterly deprived of such means; the circumstance is even worse than that of sea sounding, where nothing but the depths of observed points can be known; for we do not get what corresponds to depths and heights directly, but only what corresponds to *slopes or rates of gradiant.* If a magnetic survey could be so extended as to enable us to draw equipotentials of the disturbing forces, the ridges and valleys would become more distinct. In the absence of such we are much involved in ambiguity at present. Thus if there are numbers of stations which give disturbing forces pointing in the same direction, we are not certain whether this is due to attraction to the one side or repulsion from the other.

In *Kitakami Plateau* in the north east of Honsyū, this is exemplified. Almost all disturbing forces round this plateau diverge from it, showing apparently the presence of a magnetic valley along its length as indicated by the thick dotted line. But looking on the west, the station No. 185, Kakunodate, has a disturbing force pointing towards the east, we are thus called upon to reflect whether the observed disturbances along the banks of the Kitakami River (Nos. 165, 166, 167, 168) are due to re-

pulsions from the plateau or attractions towards the volcanic range which runs parallel to it on the west side.

Again the disturbance observed in Miyako, No. 176, looks so singular among its neighbouring stations in having its direction contrary to the rest, that some arithmetical mistake was suspected; a close examination into the notes shows no such blunder; turning to the previous observations of Knott and Nagaoka, which were made in a different part of the town across the river, even a greater effect in the same sense is found. Whether this disturbance is limited to the vicinity of the place, or extends along the coast, must be found by further observations; if the latter be the case, there will be a ridge along the coast probably running partly in the sea, and what is apparently a valley line in the middle of the plateau may turn out to be nothing but a magnetic plane.

The existence of such a ridge along the edge of a district of older geological formation is suggested by the presence of a similar line on the north coast of the granitic region of Tyūgoku. This ridge in Sanindō would seem as if to have continued with that along the coast of Hokurikudō, had it not been obliterated in the middle by the rupturous entrance of Wakasa Bay.

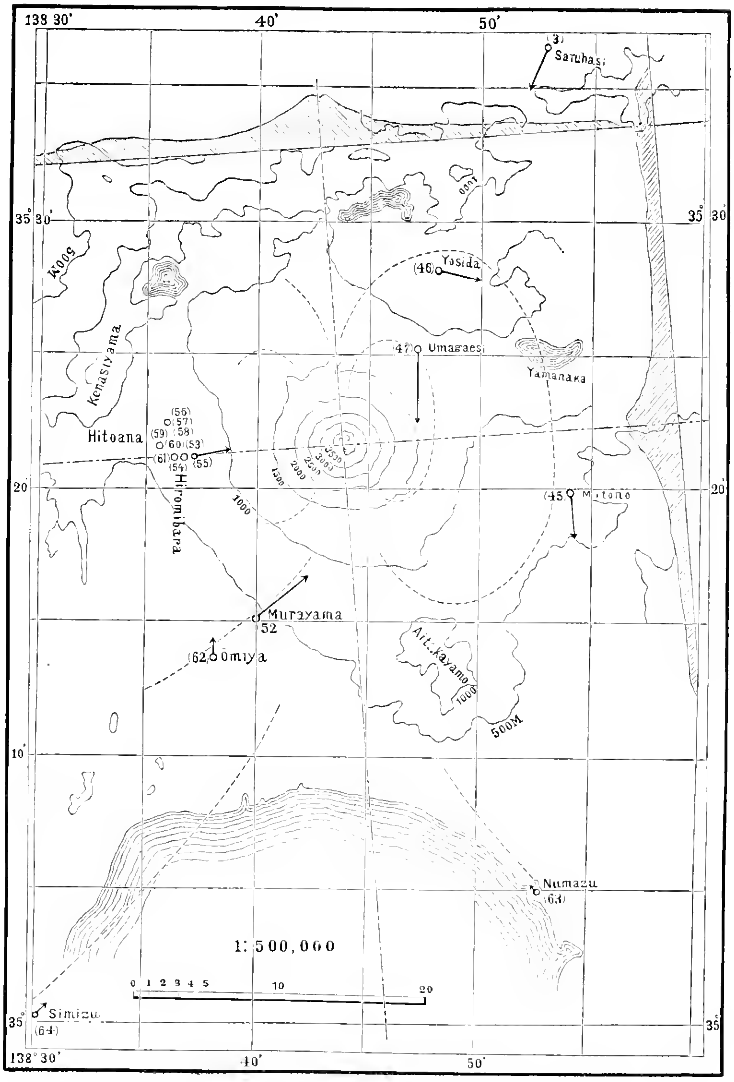
Remarks similar to those apply to all the ridge and valley lines marked on the map; their details are scarcely worth mentioning, suffice it to say that they are no more than traits of the writer's imagination.

Approximate lines of Force:—In the island of Sikoku and Peninsula of Kisyū, the disturbing forces seem to be arranged so systematically, that an attempt is made to draw approximate lines of force by tracing their envelope in a rudimentary way. (see Map 10). Though those lines appear to show a submarine source of disturbance off the Pacific coast, our results are yet too

premature to make any definite statement. Let it be remarked however, that this region is peculiar as being the most extensive part which is free from volcanic rocks, and still there is a record of a remarkable submergence of the south coast of Tosa during

Fig. 16.

Huzi District.



an earthquake in the fall of 684 A.D. Similar attempt is made in the Huzi district as shown in Fig. 16, though the points of observation are so few and disturbances so great that the map is to be looked upon only as a mere suggestion.

Map 11 at the end of the volume represents the geological aspect of the country, it can be slipped under the Map 10 or any of the maps of equal declinations, dips, or horizontal intensities.

APPENDIX

COMPLETE LIST

OF

MAGNETIC OBSERVATIONS

1893——1896

Reduced to

1895.0 and **SEA LEVEL**

Errata to the Appendix.

Page.	(2)	Oct. 19^{th} 7^h 1^m in δ,	for	4° 22′ 4″	read	4° 22′ 6″.
,,	(3)	June 26^{th} 19^h $22^m.4$ in δ,	,,	4° 27′ 37″	,,	4° 29′ 37″.
,,	(5)	July 18^{th} 19^h $48^m.8$ in δ,	,,	4° 23′ 41″	,,	4° 22′ 41″.
,,	(7)	line 3 from top,	,,	Thne	,,	Time.
,,	(8)	July 4^{th} 19^h $43^m.4$ in Mean Temp.,	,,	26.°3	,,	26.°0.
,,	(9)	Oct. 18^{th} 9^h 55^m in H,	,,	0.28703	,,	0.29703.
,,	(9)	Oct. 18^{th} 14^h 22^m in H,	,,	0.26746	,,	0 29746.
,,	(10)	Sept. 6^{th} 23^h 50^m in H,	,,	0.28916	,,	0.29816.
,,	(10)	Sept. 7^{th} 8^h 13^m in φ_2,	,,	3 46 38.8	,,	13 46 38.8.
,,	(10)	Sept. 6^{th} 8^h 13^m in Observer,	,,	Hatori	,,	Hattori.
,,	(13)	Table 3,	,,	East	,,	South.
,,	(14)	July 8^{th} 23^h $44^m.8$ in Observer,	,,	Ōmore	,,	Ōmori.
,,	(14)	θ,	,,	40.2	,,	46'.2.
,,	(17)	θ Reduction to Sea Level,	,,	0.06	,,	−0.06.
,,	(19)	9 Karuisawa,	,,	Eest	,,	East.
,,	(20)	11 Ueda,	,,	West	,,	East.
,,	(20)	Line 2 from bottom,	,,	0.03	,,	−0.03.
,,	(22)	Line 4 from bottom,	,,	29'.4	,,	29'.07.
,,	(27)	Dip in Date and Hour,	,,	July	,,	Oct.
,,	(27)	H in Date and Hour,	,,	3^{th}	,,	3^{rd}.
,,	(35)	Table 2,	,,	δ	,,	θ.
,,	(36)	Aug. 22^{nd} 10^h $4^m.2$ in Observer,	,,	Yakamura	,,	Nakamura.
,,	(37)	25 Niigata,	,,	23^{th}	,,	23^{rd}.
,,	(38)	Dip in Date and Hour,	,,	23^{nd}	,,	23^{rd}.
,,	(40)	Aug. 30^{th} 2^h 9^m in Observer,	,,	Kimuaa	,,	Kimura.
,,	(41)	Dip,	,,	South	,,	East,
		and	,,	1894	,,	1893.
,,	(41)	Aug. 30^{th} 10^h 15^m in Mean Temp.,	,,	30.2	,,	31.4.
,,	(41)	Aug. 30^{th} 10^h 15^m in Temp. t_D,	,,	31.4	,,	30.2.
,,	(41)	Declination in Date and Hour,	,,	31^{th}	,,	31^{st}.
,,	(42)	Horizontal Intensity,	,,	Teacp.	,,	Temp.,
		and	,,	Rseorder	,,	Recorder.
,,	(42)	Sept. 1^{st} 5^h 51^m in Mean Temp.,	,,	29.0	,,	22.0.
,,	(42)	Sept. 1^{st} 5^h 51^m in Observer,	,,	Makamura	,,	Nakamura.

ERRATA TO THE APPENDIX.

Page.	(43)	Sept. 3^{rd}, $18^h\ 6^m$ in φ_2,	for	15 56 61,	read	15 56 51.9.
,,	(44)	Sept. 6^{th} $13^h\ 44^m$ in Mean Temp.,	,,	25.°6	,,	26.°6.
,,	(44)	Sept. 6^{th} $13^h\ 44^m$ in Temp. t_v,	,,	25.°7	,,	27.°5.
,,	(44)	Sept, 7^{th} $23^h\ 54^m$ in Observer,	,,	Midzusma	,,	Midzusima.
,,	(45)	Declination in Sea level,	,,	0.06	,,	−0.06.
,,	(48)	Declination,	,,	1896	,,	1893.
,,	(50)	Sept. 18^{th} $11^h\ 1^m$ in Mean Temp.,	,,	26.2	,,	21.2.
,,	(52)	Horizontal Intensity,	,,	South	,,	East.
,,	(55)	Horizontal Intensity,	,,	South	,,	East.
,,	(58)		,,	Delection	,,	Declination.
,,	(59)	Declination,	,,	1895	,,	1893.
,,	(65)	July 12^{th} 17^h in Date and Hour,	,,	3.1^m	,,	31^m.
,,	(71)	60 and 61 in Sea level,	,,	0.08	,,	−0.08.
,,	(72)	Dip, in Reduction to Sea Level,	,,	0.01	,,	−0.01.
,,	(73)	Dip, in Date and Hour,	,,	Juyl	,,	July.
,,	(76)	Dip, in Sea Level,	,,	0.02	,,	−0.02.
,,	(76)	Declination in δ,	,,	4° 28.′9	,,	4° 29.′0.
,,	(77)	Dip, in Reduction to 1895.0,	,,	0.43	,,	−0.43.
,,	(78)	Horizontal Intensity in Date and Hour,	,,	29^{th}	,,	30^{th}.
,,	(81)	Addition to Table 3, Observations of the Seto sea party, 1896.				
,,	(83)	Dip in Reduction to 1895.0,	,,	0.99	,,	−0.99.
,,	(84)	Declination,	,,	West party, 1893	,,	Kinki party, 1896
,,	(88)	Declination in Date and Hour,	,,	25^{nd}	,,	25^{th}.
,,	(92)	Aug. 15^{th} $8^h\ 5^m$ in Observer,	,,	Uziik	,,	Uziie.
,,	(94)	Horizontal Intensity in Date and Hour,	,,	22^{th}	,,	22^{nd}.
,,	(94)	Aug. 23^{rd},	,,	$16^h\ 2^m$	,,	$16^h\ 21^m$.
,,	(95)	Dip in θ,	,,	11.′6	,,	11.′1.
,,	(95)	Declination,	,,	25^{th}	,,	26^{th}.
,,	(95)	Aug. 26^{th} $16^h\ 30^m$ in δ,	,,	,,	,,	4.°.
,,	(96)	Aug. 28^{th} $13^h\ 29^m$ in Time of 1-Vibn.,	,,	56.732	,,	5.6732.
,,	(97)	Aug. 30^{th} $15^h\ 26^m$ in Mean Temp.,	,,	27.°CC	,,	29.°CC.
,,	(98)	Declination,	,,	Daet	,,	Date.
,,	(100)	Declination in δ,	,,	49.′0	,,	49.′80.
,,	(101)	July 15^{th} $22^h\ 2^m$ in M,	,,	424.23	,,	422.43.
,,	(101)	Nagahama,	,,	July $18^h\ 24^m$	,,	July 16^{th} $18^h\ 24^m$.
,,	(101)	Nagahama in θ,	,,	59° 7.′0	,,	49° 7.′0.

Page.	(102)	Declination in Date and Hour,	for	3rd	read	,, .
,,	(103)	Sept. 13^{th} 15^{h} 29^{m},	,,	20.8	,,	30.8.
,,	(103)	Horizontal Intensity in Mean,	,,	0.30221	,,	0.30321.
,,	(104)	Dip in θ,	,,	56'.35	,,	56'.39.
,,	(108)	Horizontal Intensity,	,,	Wazima party, 95	,,	West party, 1893.
,,	(118)	Dip Aug. 18^{th},	,,	47^{m}	,,	4.7^{m}.
,,	(119)	July 21^{st} 16^{h} $58^{m}.4$ in Observer,	,,	Tanakedata	,,	Tanakadate.
,,	(120)	Dip,	,,	22^{th}	,,	22^{nd}.
,,	(120)	Declination,	,,	24^{nd}	,,	24^{th}.
,,	(122)	Horizontal Intensity in Time of 1-Vibn.,	,,	$5^{s}.99317$	,,	$5^{s}.9931$.
,,	(124)	Dip in Sea level,	,,	0.12	,,	0.02.
,,	(124)	Dip in θ,	,,	57° 35'.0	,,	57° 34'.9.
,,	(124)	Horizontal Intensity in Sea level,	,,	1029	,,	147.
,,	(124)	Horizontal Intensity in H,	,,	0.26595	,,	0.26586.
,,	(124)	Table 4,	,,	θ	,,	δ.
,,	(128)	Horizontal Intensity in φ_1,	,,	7 33 36.2	,,	7 32 36.2.
,,	(131)	Horizontal Intensity,	,,	West	,,	North.
,,	(140)	Dip in Date and Hour,	,,	2^{rd}	,,	2^{nd}.
,,	(140)	Dip in Date and Hour,	,,	3^{th}	,,	3^{rd}.
,,	(140)	Horizontal Intensity in Date and Hour,	,,	2^{rd}	,,	2^{nd}.
,,	(140)	Horizontal Intensity in Date and Hour,	,,	3^{th}	,,	3^{rd}.
,,	(153)	Declination in Date and Hour,	,,	,, ,, 4 41.1	,,	Aug. 1^{st} 4 41.1.
,,	(163)	Declination in Date and Hour,	,,	4.22	,,	42.2.
,,	(166)	Siranuka,	,,	Coffiice	,,	Office.
,,	(174)	Table 4 in φ_1,	,,	6 39 6.6	,,	6 39 6.9
,,	(174)	Table 4 in Temp. t_D,	,,	151	,,	15.1.
,,	(175)	Table 1,	,,	Defleetion	,,	Deflection.
,,	(175)	Table 2,	,,	1894	,,	1895.
,,	(176)	Table 4 in Mean Temp.,	,,	25.°9	,,	26.°9.
,,	(177)	Table 2 in Observer,	,,	Kotō	,,	Katō.
,,	(190)	Akka,	,,	vegitable	,,	Vegetable.
,,	(191)	Table 1,	,,	θ	,,	δ.
,,	(197)	Kesennuma Syuttyō (1) in Date and Hour,	,,	12^{st}	,,	31^{st}.
,,	(199)	Table 3 from top in Date and Hour,	,,	19^{m}	,,	47^{m}.
,,	(199)	Table 6 from top,	,,	Hour	,,	Hour.

ERRATA TO THE APPENDIX.

Page.	(199)	Table 6 from top in θ,	for	51° 46!4	read	52° 34!9.
,,	(205)	Table 2 in θ,	,,	53° 33!8	,,	53° 33!7.
,,	(205)	Akita Syuttyō (Dip) in Recorder,	,,	Sinzō	,,	Sinzyō.
,,	(207)	Declination in Date and Hour,	,,	4th	,,	,, .
,,	(207)	Declination in Reduction to 1895.0,	,,	1.47	,,	−1.47.
,,	(210)	Declination in δ,	,,	5° 30′ 4″	,,	5° 30′ 43″.
,,	(212)	Declination in Date and Hour,	,,	,, ,, 8 1.99	,,	,, ,, 8 19.9.
,,	(215)	Horizontal Intensity in Recorder,	,,	Sinyzō	,,	Sinzyō.
,,	(218)	Makado Syuttyō,	,,	needle	,,	needle.
,,	(221)	Table 3 from Top,	,,	Easte	,,	East.
,,	(221)	198,	,,	Fukaya	,,	Hukaya.
,,	(222)	Horizontal Intensity in Date and Hour,	,,	8 33	,,	6 33.
,,	(222)	199 Sakura,	,,	graund	,,	ground.
,,	(232)	Hukusima,	,,	207.	,,	209.
,,	(233)	Yonezawa,	,,	North	,,	South.
,,	(236)	Sakata,	,,	613	,,	213.
,,	(242)	Horizontal Intensity,	,,	1894	,,	1895.
,,	(253)	Declination in δ,	,,	5 59 42	,,	4 59 42.
,,	(254)	Declination in δ,	,,	,, 31 7	,,	,, 31 37.
,,	(256)	Declination in δ,	,,	,, 4 18	,,	,, 4 41.
,,	(259)	θ,	,,	49° 2!0	,,	49° 2!9.
,,	(260)	Horizontal Intensity,	,,	Temp. t_V	,,	Temp. t_D.
,,	(261)	Horizontal Intensity in Temp. t_D,	,,	327C	,,	32°.7C.
,,	(264)	Line 28 from top,	,,	1865.0	,,	1895.0.
,,	(271)	Dip in θ,	,,	46° 56.°0	,,	46° 56!0.
,,	(278)	Horizontal Intensity in Temp. t_D,	,,	30°C	,,	30.°4C.
,,	(279)	Declination in δ	,,	,, 34 0	,,	,, 34 30.
,,	(284)	Table 4 from top in Temp. t_V,	,,	3°.83C	,,	38.°3C.
,,	(287)	θ,	,,	49° 39!3	,,	49° 32!3.
,,	(288)	Horizontal Intensity,	,,	1895	,,	1896.
,,	(290)	Matue Syuttyō in Mean,	,,	0.28217	,,	0.30468.
,,	(291)	Dip in Sea level,	,,	10.01	,,	−0.01.
,,	(294)	269,	,,	Hamabata	,,	Hamahata.
,,	(294)	Hamahata,	,,	Hornr	,,	Hour.
,,	(302)	Horizontal Intensity,	,,	dg	,,	by.
,,	(329)	Declination, in Recorder,	,,	Hottori	,,	Hattori.
,,	(331)	Declination in Recorder,	,,	Hattorl	,,	Hattori.
,,	(332)	Declination,	,,	Wast	,,	West.

1 a TŌKYO.

Play ground of Tōkyō Imperial University (東京帝國大學運動場).

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time)				δ			Observer	Recorder
July	4th	6h	32m	4°	30′	33″	Nakamura	Nakamura
,,	,,	9	14	,,	24	41	,,	Kimura
,,	,,	15	35	,,	35	21	,,	Midzusima
,,	,,	18	56	,,	32	7	,,	,,
Mean.				4°	31′	6″		

$$\begin{aligned} \delta &= 4^\circ\ 31'.10 \\ \text{Reduction to } 1895.0 &= 1.27 \\ \text{,, ,, sea level} &= 0.00 \\ \hline \delta &= 4^\circ\ 32'.4 \end{aligned}$$

Observations of the West Party, 1893.

Date and Hour (Mean Local Time)				δ			Observer	Recorder
July	4th	5h	48m	4°	33′	26″	Noda	Noda
,,	,,	6	5	,,	31	42	,,	,,
,,	,,	7	14	,,	34	44	,,	,,
,,	,,	8	15	,,	27	26	,,	,,
,,	,,	11	25	,,	35	45	Turuta	Udzûe
,,	,,	14	41	,,	27	51	Iwaoka	,,
,,	,,	18	57	,,	21	45	,,	,,
Mean.				4°	30′	42″		

$$\begin{aligned} \delta &= 4^\circ\ 30'.70 \\ \text{Reduction to } 1895.0 &= 1.27 \\ \text{,, ,, sea level} &= 0.00 \\ \hline \delta &= 4^\circ\ 32'.0 \end{aligned}$$

Observations of the West Party, 1893.

Date and Hour (Mean Local Time)				δ			Observer	Recorder
Oct.	10th	18h	40m	4°	24′	36″	Iwaoka	Turuta
,,	,,	18	55	,,	23	26	,,	Noda
,,	,,	20	1	,,	24	9	,,	,,
,,	,,	20	28	,,	25	51	,,	,,
,,	,,	21	9	,,	24	50	,,	,,
,,	,,	21	31	,,	25	54	,,	,,
,,	11	0	47	,,	22	14	,,	Iwaoka
,,	,,	1	7	,,	23	35	,,	,,
,,	,,	6	16	,,	24	17	,,	,,
,,	,,	6	42	,,	22	3	,,	,,
,,	,,	7	16	,,	20	23	,,	Turuta
,,	,,	8	15	,,	20	47	Turuta	Iwaoka
,,	,,	8	27	,,	22	30	,,	,,
,,	,,	9	55	,,	23	34	Iwaoka	Turuta
,,	,,	10	15	,,	22	7	Turuta	,,
,,	,,	10	30	,,	22	34	Iwaoka	,,
,,	,,	10	54	,,	24	7	,,	,,
,,	,,	11	46	,,	25	2	Turuta	Iwaoka
,,	,,	11	58	,,	24	50	Iwaoka	Turuta

To be continued.

Continued.

Date and Hour (Mean Local Time)				δ			Observer	Recorder
Oct.	11th	12h	10m	4°	25′	11″	Iwaoka	Turuta
,,	,,	13	0	,,	25	2	Turuta	Iwaoka
,,	,,	13	17	,,	26	3	,,	,,
,,	,,	14	13	,,	25	38	,,	Turuta
,,	,,	14	28	,,	24	23	,,	Iwaoka
,,	,,	15	36	,,	24	14	Iwaoka	Turuta
,,	,,	15	50	,,	24	8	,,	,,
,,	,,	16	4	,,	23	59	,,	,,
,,	,,	16	54	,,	24	26	,,	,,
,,	,,	17	6	,,	24	26	,,	,,
,,	,,	17	53	,,	24	13	,,	,,
,,	,,	18	8	,,	24	45	,,	,,
,,	,,	19	58	,,	24	43	,,	,,
,,	,,	20	14	,,	23	48	,,	,,
,,	,,	21	1	,,	24	5	,,	,,
,,	,,	21	39	,,	24	13	,,	Iwaoka
,,	,,	22	53	,,	24	13	,,	,,
,,	,,	22	16	,,	23	23	,,	,,
,,	12th	8	15	,,	19	35	,,	,,
Mean				4	23′	14″		

δ = 4 23′.23

Reduction to 1895.0 = 1.04

,, ,, sea level = 0.00

δ = 4 24′.3

Observations of the West Party, 1893.

Date and Hour (Mean Local Time)				δ			Observer	Recorder
Oct.	18th	16h	23m	4°	24′	31″	Iwaoka	Turuta
,,	,,	17	14	,,	24	22	,,	,,
,,	,,	19	40	,,	23	36	,,	,,
,,	,,	21	22	,,	23	40	,,	,,
,,	,,	22	32	,,	22	10	,,	,,
,,	,,	23	14	,,	22	13	,,	,,
,,	19th	6	20	,,	22	6	,,	Iwaoka
,,	,,	6	39	,,	22	5	,,	,,
,,	,,	7	1	,,	22	4	,,	,,
,,	,,	9	3	,,	20	48	,,	Turuta
,,	,,	10	57	,,	20	25	Turuta	,,
,,	,,	11	6	,,	23	10	Iwaoka	,,
,,	,,	11	19	,,	24	31	,,	,,
,,	,,	12	13	,,	25	48	,,	Ōmori
,,	,,	12	36	,,	26	34	,,	,,
,,	,,	14	14	,,	26	5	,,	,,
,,	,,	15	34	,,	23	57	,,	,,
,,	,,	16	36	,,	22	41	,,	Iwaoka
,,	,,	18	0	,,	23	17	Turuta	,,
,,	,,	19	44	,,	23	19	Iwaoka	Turuta
,,	,,	21	13	,,	23	31	,,	,,
,,	,,	22	48	,,	23	15	,,	,,
,,	20th	6	28	,,	21	57	,,	Iwaoka
,,	,,	7	7	,,	21	20	,,	,,
,,	,,	7	47	,,	20	11	,,	,,
,,	,,	8	35	,,	19	27	,,	,,
				To be continued				

Continued.

Date and Hour (Mean Local Time)	δ	Observer	Recorder
Oct. 26th 8^h 48^m	4 20′ 10″	Iwaoka	Iwaoka
,, ,, 9 15	,, 20 13	,,	,,
,, ,, 9 35	,, 20 11	,,	,,
,, ,, 9 47	,, 19 30	,,	,,
,, ,, 10 18	,, 20 53	,,	,,
,, ,, 10 36	,, 21 24	,,	,,
,, ,, 10 51	,, 22 48	,,	,,
,, ,, 11 15	,, 23 29	,,	,,
,, ,, 11 30	,, 23 8	,,	,,
Mean	4 22′ 48″		

$\delta = 4\ \ 22'.80$

Reduction to 1895.0 = 1.02

,, ,, sea level = 0.00

$\delta = 4^\circ\ \ 23'.8$

Observations of the North Party, 1894.

Date and Hour (Mean Local Time)	δ	Observer	Recorder
June 26th 8^h 39.7^m	4 19′ 12″	..	..
,, ,, 11 1.8	,, 25 17	..	..
,, ,, 14 0.2	,, 27 29	..	..
,, ,, 17 11.4	,, 24 47	..	..
,, ,, 20 15.9	,, 24 41	..	..
,, 27th 5 28.3	,, 22 38	..	..
,, ,, 7 33.2	,, 20 33	..	..
,, ,, 10 16.5	,, 22 50	..	..
,, ,, 19 54.7	,, 25 3	..	..
Mean	4 23′ 39″		

$\delta = 4\ \ 23'.65$

Reduction to 1895.0 = 0.44

,, ,, sea level = 0.00

$\delta = 4\ \ 24'.1$

Observations of the south party, 1894.

Date and Hour (Mean Local Time)	δ	Observer	Recorder
June 26th 10^h 3.4^m	4 27′ 18″	Nakamura	Imamura
,, ,, 10 24.9	,, 28 17	Imamura	Nakamura
,, ,, 12 15.4	,, 32 36	Nakamura	Imamura
,, ,, 14 8.6	,, 32 39	Imamura	Nakamura
,, ,, 16 33.7	,, 30 52	Nakamura	Imamura
,, ,, 17 2.6	,, 30 21	,,	,,
,, ,, 19 22.4	,, 27 37	Imamura	Nakamura
,, ,, 20 12.8	,, 30 8	Nakamura	Imamura
,, ,, 21 35.4	,, 29 44	,,	Nakamura
,, 27th 5 47.9	,, 27 30	,,	,,
,, ,, 6 52.8	,, 25 35	,,	,,
,, ,, 8 2.9	,, 26 44	,,	,,
,, ,, 9 56.7	,, 28 10	Imamura	,,
,, ,, 12 13.2	,, 32 10	,,	Imamura
,, ,, 13 15.7	,, 34 41	,,	,,
,, ,, 14 34.2	,, 33 14	,,	,,
,, ,, 16 29.7	,, 31 13	Nakamura	Nakamura
,, ,, 17 17.7	,, 31 1	,,	Imamura
Mean	4 29′ 49″		

$\delta = 4^\circ\ \ 29'.81$

Reduction to 1895.0 = 0.44

,, ,, sea level = 0.00

$\delta = 4^\circ\ \ 30'.2$

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Oct. 12th 19h 29.6m	4° 28′ 24″	Imamura	Nakamura
,, ,, 21 27.5	,, 28 14	,,	,,
,, 13th 6 26.1	,, 26 26	Nakamnra	,,
,, ,, 8 11.7	,, 25 54	Imamura	Imamura
,, ,, 8 59.2	,, 25 4	Nakamura	Nakamura
,, ,, 10 34.5	,, 26 23	Imamura	Imamura
,, ,, 11 30.7	,, 28 25	Nakamura	Nakamuru
,, ,, 13 51.0	,, 30 6	Imamura	Imamura
,, ,, 15 53.6	,, 27 53	,,	,,
,, ,, 13 18.1	,, 31 8	..	..
,, ,, 13 46.9	,, 30 53	..	..
,, ,, 16 30.4	,, 23 24	..	..
,, ,, 13 41.3	,, 23 31	..	..
Mean	4 27′ 48″		

$\delta = 4^\circ\ 27'.80$

Reduction to 1895.0 = 0.18

,, ,, sea level = 0.00

$\delta = 4\ \ 28'.0$

Observations of the South Party, 1894.

Date and Hour. (Mean Local Time.)	δ	Observer	Recorder
Oct. 20th 8h 45.9m	4 20′ 57″	Imamura	Imamura
,, ,, 9 4.1	,, 20 35	,,	,,
,, ,, 10 1.5	,, 21 11	..	..
,, ,, 11 15.8	,, 23 10	..	..
,, ,, 12 31.1	,, 25 45	..	..
,, ,, 13 31.8	,, 26 58	..	..
,, ,, 14 45.9	,, 26 8	..	..
,, ,, 15 57.4	,, 24 26	..	..
,, ,, 17 21.0	,, 23 20	Imamura	Imamura
,, ,, 18 24.1	,, 23 25	Nakamura	Nakamura
,, ,, 19 36.5	,, 23 31	..	..
,, ,, 20 46.7	,, 23 27	..	..
,, ,, 21 38.5	,, 22 58	..	..
,, 21st 0 45.3	,, 23 9	..	..
,, ,, 6 16.4	,, 23 59	..	..
,, ,, 7 55.4	,, 21 33	Nakamura	Nakamura
,, ,, 8 55.7	,, 19 48	Imamura	Imamura
,, ,, 10 2.8	,, 19 31	Nakamura	Nakamura
,, ,, 10 50.0	,, 21 28	..	..
,, ,, 11 35.4	,, 23 58	..	..
Mean	4 23′ 25″		

$\delta = 4\ \ 23'.41$

Reduction to 1895.0 = 0.17

,, ,, sea level = 0.00

$\delta = 4^\circ\ \ 23'.6$

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
June 23rd 10h 35m	4 25′ 17″	..	..
,, ,, 14 19	,, 29 32	..	..
,, 24th 6 13	,, 18 18	Tanakadate	Katō
,, ,, 7 13	,, 17 28	Sinzyō	,,
,, ,, 14 4	,, 30 24	Tanakadate	Sinzyō
Mean	4 22′ 31″		

$\delta = 4^\circ\ \ 22'.51$

Reduction to 1895.0 = −0.41

,, ,, sea level = 0.00

$\delta = 4\ \ 22'.1$

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	17th	10h	16.1m	4°	22′	11″	Nakamura	Nakamura
"	"	10	52.4	"	22	57	Tamaru	Tamaru
"	"	12	13.7	"	26	22	"	"
"	"	16	3.9	"	25	9	Imamura	Imamura
"	"	16	18.4	"	24	44	"	"
"	"	17	32.4	"	23	16	"	"
"	"	18	17.4	"	22	58	"	Tamaru
"	"	21	22.4	"	24	14	Tamaru	"
"	18th	5	4.6	"	22	2	"	"
"	"	5	55.1	"	20	32	"	"
"	"	7	55.6	"	20	22	"	"
"	"	9	4.8	"	22	8	"	"
"	"	10	10.7	"	23	44	Nakamura	Nakamura
"	"	11	28.1	"	25	14	Tamaru	Tamaru
"	"	12	4.6	"	26	12	"	Imamura
"	"	13	25.9	"	27	5	Imamura	"
"	"	14	26.4	"	26	29	Nakamura	Tamaru
"	"	15	13.4	"	25	49	Tamaru	Imamura
"	"	16	12.4	"	24	42	Imamura	"
"	"	17	24.9	"	23	47	"	"
"	"	18	25.7	"	23	27	Nakamura	Nakamura
"	"	19	48.8	"	23	41	"	"
Mean				4	23′	43″		

$\delta = 4°\ 23'.71$
Reduction to 1895.0 $= -0.46$
" " sea level $= 0.00$
$\delta = 4\ 23.2$

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	6th	11h	16m	4	25′	30″	Sinzyō	Hattori
"	"	12	0	"	25	43	"	"
"	"	13	3	"	25	9	"	"
"	"	14	1	"	22	5	Hattori	Sinzyō
"	"	16	20	"	22	18	Sinzyō	Hattori
"	"	18	3	"	21	10	"	"
"	"	18	57	"	21	58	"	"
"	"	20	31	"	22	0	"	"
"	"	22	30	"	21	53	"	Sinzyō
"	"	23	17	"	21	38	Hattori	"
"	7th	4	4	"	20	4	Sinzyō	Hattori
"	"	6	20	"	19	28	Hattori	Sinzyō
"	"	6	48	"	19	1	"	"
"	"	9	2	"	22	13	Sinzyō	Hattori
"	"	11	11	"	26	55	"	Imamura
Mean				4°	22′	25″		

$\delta = 4°\ 22'.41$
Reduction to 1895.0 $= -1.43$
" " sea level $= 0.00$
$\delta = 4°\ 21.0$

DIP (θ)

Observations of the East Party, 1893,

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 4th 16h 56.0m	1	48° 52'.4	Ōmori	Midzusima
Mean		48 52'.4		

θ = 48 52'.4
Reduction to 1895.0 = 1.35
" " sea level = 0.00
θ = 48 53'.8

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 1st 15h 39m	2	49 1'.4	Iwaoka	Uziie
" 3rd 18 58	1	48 57.0	Noda	Turuta
" 4th 11 4	2	49 5.8	Turuta	"
" " 16 12	3	" 2.7	"	Iwaoka
Mean		49 1'.7		

θ = 49° 1'.7
Reduction to 1895.0 = 1.35
" " sea level = 0.00
θ = 49 3'.1

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recoder
Oct. 11th 9h 20m	3	49° 2'.8	Turuta	Turuta
" " 12 38	3	48 59.5	Iwaoka	"
" " 18 53	—	49 2.6	Turuta	Iwaoka
" 18th 21 59	—	" 11.5	"	"
" 19th 10 47	—	48 59.2	"	Turuta
" " 17 38	—	" 58.3	Iwaoka	"
" " 22 9	—	" 59.6	Turuta	Iwaoka
Mean		49 1'.9		

θ = 49 1'.9
Reduction to 1895.0 = 1.08
" " sea level = 0.00
θ = 49 3.0

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
June 26th 22h 33m	1	49 1'.4	Tanakadate	Tanakadate
" 27 9 23	2	" 4.2	"	"
		49 2.8		

θ = 49 2'.8
Reduction to 1895.0 = 0.46
" " sea level = 0.00
49 3'.3

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
June 26th 15h 39.8m	2	49 3'.9	Imamura	Imamura
" 27th 9 14.5	1	" 13.1	Nakamura	Nakamura
" " 10 27.5	1	" 8.7	Imamura	Imamura
" " 17 5.2	1	" 12.7	Nakamura	"
Mean		49 9'.6		

θ = 49° 9'.6
Reduction to 1895.0 = 0.47
" " sea level = 0.00
49° 10'.1

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Oct. 13th 10h 40.8m	2	49 7′.5	Imamura	Imamura
" 20th 12 11.4	2	" 7.6	"	"
" " 19 11.4	2	" 14.6	Nakamura	Nakamura
" 21st 10 33.2	2	" 13.5	"	"
" 22nd 9 0.7	2	" 10.4	Imamura	Imamura
" " 13 57.2	2	" 13.0	Nakamura	Nakamura
Mean		49 11′.1		

θ = 49 11′.1
Reduction to 1895.0 = 0.18
" " sea level = 0.00
49 11′.3

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
June 23rd 15h 42m	1	49 19′.7	Sinzyō	Katō
" " 18 36	1	48 55.6	Tanakadate	"
" 24th 10 39	2	49 2.2	Katō	"
" " 11 57	2	48 59.7	"	"
Mean		49 4′.3		

θ = 49 4′.3
Reduction to 1895.0 = −0.43
" " sea level = 0.00
θ = 49 3′.9

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
June 23rd	1	49 5′.3	Imamura	Tamaru

θ = 49 5′.3
Reduction to 1895.0 = −0.43
" " sea level = 0.00
θ = 49 4′.9

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 17th 21h 45m	1	49 2′.5	Tamaru	Tamaru
" " 17 11	1	" 4.5	Imamura	Imamura
" 18th 11 1	1	" 0.6	Nakamura	Nakamura
Mean		49 2.5		

θ = 49 2′.5
Reduction to 1895.0 = −0.49
" " sea level = 0.00
θ = 49 2′.0

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Nov. 6th 15h 47m	2	49 3′.0	Sano	{Sano {Sutō
" 7th 9 42	2	" 2.5	Sutō	Sutō
" " 16 51	2	" 0.5	Sano	Sano
Mean		49 2′.0		

θ = 49 2′.0
Reduction to 1895.0 = −1.66
" " sea level = 0.00
θ = 49 0′.3

HORIZONTAL INTENSITY (H)

(*\textit{Value deduced from Vibration only by assuming Value of} M.)

*(*Value deduced from Vibration only by assuming Value of M.)*

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
				s						
July 3rd 9h 53.6m	0.29613	498.30	31.6C	5.4180	32.4C	7 17′17″5	16 32′57″5	30.7C	{ Ōmori Midzusima	{ Tanakadate Ōmori
,, 4th 14 17.0	0.29810	477.93	32.0	5.5183	32.6	7 1 39.4	15 44 29.4	31.5	Nakamura	Midzusima
,, ,, 19 43.4	0.29654	475.55	26.3	5.5244	26.0	6 59 7.5	15 54 40.6	26.0	Midzusima	Ōmori
,, ,, 23 8.4	*0.29687	479.55	24.7	5.5235	24.7	(6 1 3.8	15 58 26.9	22.8)	Nakamura	Kimura
Mean	0.29691									

$H=$ 0.29691
Reduction to 1895.0 = 670
,, ,, sea level = 38
$H=$ 0.29698

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
				s						
July 2nd 23h 46m	0.29637	487.58	24.5C	5.5286	24.5C	7 4′ 0″0	16 7′16″2	24.6C	Iwaoka	Uziie
,, 3rd 9 55	*0.29693	482.64	32.7	5.5496	32.7	(6 56 49.0	16 2 19.0	30.9)	{ ,, Turuta	,,
,, ,, 15 16	0.29723	481.95	31.0	5.5501	35.4	6 59 18.8	15 59 5.0	32.7	Iwaoka	Turuta
,, 4th 14 21	0.29663	470.73	33.0	5.6224	34.6	6 49 32.0	15 34 55.0	31.4	{ Turuta Iwaoka	{ Iwaoka Turuta
,, ,, 19 59	0.29822	472.61	25.6	5.5990	25.7	6 49 46.2	15 36 27.5	25.5	,,	,,
,, 5th 0 47	*0.29788	473.00	23.8	5.5761	23.8	(6 50 25.0	15 37 41.3	24.1)	,,	,,
Mean	0.29721									

$H=$ 0.29721
Reduction to 1895.0 = 670
,, ,, sea level = 38
$H=$ 0.29728

Observations of the West Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
				s						
Oct. 19th 8h 9m	0.29750	451.90	21.4C	5.7322	21.4C	6 33′ 3″5	14 57′56″0	21.3	Iwaoka	Iwaoka
,, ,, 13 50	0.29743	448.86	30.5	5.7531	30.7	6 30 3.8	14 50 32.5	30.3	,,	Ōmori
,, ,, 16 12	0.29748	449.60	28.3	5.7493	29.3	6 31 3.1	14 53 1.9	27.4	,,	,,
,, ,, 19 13	0.29727	451.95	21.6	5.7345	21.8	6 33 11.3	14 57 48.1	21.3	{ Turuta Iwaoka	{ Iwaoka Turuta
Mean	0.29742									

$H=$ 0.29742
Reduction to 1895.0 = 539
,, ,, sea level = 38
$H=$ 0.29748

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp t_D	Observer	Recorder
				s						
June. 26th 16h 17.0m	0.29704	457.98	30.9C	5.6515	31.0C	6 39′31″0	15 7′ 2″5	30.8C	Tanakadate	Tanakadate
,, 27 0 34.8	*0.29731	459.25	23.8	5.6466	23.8	—	—	—	,,	,,
,, 28 7 42.0	0.29689	458.89	26.0	5.6449	25.5	5 4 34.0	15 9 43.8	26.5	,,	,,
Mean	0.29708									

$H=$ 0.29708
Reduction to 1895.0 = 231
,, ,, sea level = 38
$H=$ 0.29711

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibⁿ.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
June 26th 11h 53m	0.29749	442.00	33.7C	5.7974 s	34.1C	6°23′42″5	14°35′19″4	33.3C	Nakamura	Imamura
„ „ 18 52	0.29789	444.03	26.2	5.7796	26.6	6 25 32.5	14 40 17.5	25.9	Imamura	Nakamura
„ 27th 8 23	0.29785	443.31	25.8	5.7844	26.1	6 24 49.0	14 38 24.0	25.6	„	„
Mean	0.29774									

$H =$ 0.29774
Reduction to 1895.0 = 232
„ „ sea level = 38
$H =$ 0.29777

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibⁿ.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Oct. 15th 17h 39m	0.29724	440.29	20.5C	5.8089 s	20.4C	6°22′40″0	14°32′51″9	20.6C	Kato, Imamura	Imamura, Kato
„ 18th 9 55	0.28703	440.04	21.0	5.8124	20.7	6 22 36.9	14 32 41.2	21.3	„	Nakamura
„ „ 10 44	0.29702	440.11	21.9	5.8124	21.7	6 22 40.6	14 32 46.9	22.1	Nakamura	Imamura
„ „ 11 29	0.29692	439.77	22 5	5.8155	22.4	6 22 23.1	14 31 55.0	22.7	Imamura	Nakamura
„ „ 12 6	0.29700	439.57	22.5	5.8161	22.4	6 22 13.8	14 31 45.6	22.6	Nakamura	Imamura
„ „ 14 22	0.26746	438.97	24.2	5.8189	25.7	6 21 39.4	14 30 40.6	22.8	Imamura	Nakamura
„ „ 14 51	0.29725	439.69	22.2	5.8137	22.6	6 22 10.6	14 31 41.9	21.8	Nakamura	Imamura
„ „ 16 0	0.29740	440.73	19 7	5.8048	19.8	6 22 51.2	14 33 12.5	19.6	Imamura	Nakamura
„ „ 16 53	0.29705	440.94	18 5	5.8065	18.4	6 23 20.6	14 31 8.1	18.5	Nakamura	Imamura
„ „ 19 9	0.29687	441.51	16.7	5.8047	16.8	6 24 14.4	14 36 18.1	16.7	Imamura	Nakamura
„ „ 20 3	0.29687	440.82	17.5	5.8091	17.5	6 23 43.8	14 35 21.9	17.4	Nakamura	Imamura
„ 19th 2 37	0.29712	442.60	14.0	5.7949	14.1	6 24 47.5	14 37 23.1	13.9	Imamura	Nakamura
„ „ 3 18	0.29739	442.03	14.2	5.7963	14.4	6 24 26.9	14 37 23.1	14.0	Nakamura	Imamura
„ „ 4 10	0.29728	442.02	14.2	5.7965	14.0	6 24 23.8	14 37 8.1	14.4	Imamura	Nakamura
„ „ 5 45	0.29721	442.17	14.4	5.7969	14.5	6 24 34.4	14 37 20.0	14.3	Nakamura	Imamura
„ „ 7 7	0.29721	441.96	14.6	5.7972	14.2	6 24 16.9	14 36 45.0	15.0	Imamura	Nakamura
Mean	0.29715									

$H =$ 0.29715
Reduction to 1895.0 = 092
„ „ sea level = 38
$H =$ 0.29716

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean. Temp.	Time of 1-Vibⁿ.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
June 23rd 10m 57.0s	0.29732	435.81	23.2C	5.7881 s	22.8C	6°19′35″0	14°20′43″8	23.6C	..	..

$H =$ 0.29732
Reduction to 1895.0 = −212
„ „ sea level = 38
$H =$ 0.29730

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
June 23rd 5^h 1.7^s	0.29779	436.53	21.1 C	5.8284^s	21.0 C	6 19′5″.6	14 25′13″.1	21.2 C	..	..

$H=$ 0.29779
Reduction to 1895.0 = −212
" " sea level = 38
$H=$ 0.29777

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 17th 18^h 55^m	0.29776	434.55	23.4 C	5.8427^s	23.6 C	6°17′15″.0	14 20′40″.6	23.3 C	Tamaru	Imamura
" 18th 14 54	0.29787	432.88	28.0	5.8532	28.2	6 15 46.3	14 17 36.9	27.8	Imamura	"
" " 20 55	0.29766	433.70	25.4	5.8491	25.4	6 16 35.0	14 19 12.5	25.4	Tamaru	Nakamura
Mean	0.29776									

$H=$ 0.29776
Reduction to 1895.0 = −243
" " sea level = 38
$H=$ 0.29774

Observations of the Seto sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Nov. 6th 13^h 26.4^m	0.29851	405.21	18.3 C	6.0611^s	19.2 C	5 53′33″.8	13 20′46″.2	17.5 C	Sano / Sutō	Sutō / Sano
" 7th 9 0.8	0.29814	408 08	9.8	6.0409	9.1	5 56 13.8	13 26 31.2	9.6	Sano / Sutō	Sutō / Sano
" " 18 57.9	0.29838	407.47	9.9	6.0436	10.2	5 55 43.1	13 25 45.6	9.7	Sano / Sutō	Sutō / Sano
Mean	0.29834									

$H=$ 0.29834
Reduction to 1895.0 = −829
" " sea level = 38
$H=$ 0.29826

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Sept. 6th 13^h 43^m	0.29850	416.94	35.1 C	5.9596^s	35.7 C	6 1′ 1″.3	13 43′ 8″.8	34.5 C	Sinzyō	Hattori
" " 15 25	0.29816	417.26	34.0	5.9601	34.5	6 1 32.5	13 44 8.8	33.6	Hattori	Sinzyō
" " 16 1	0.29836	417.59	33.8	5.9564	34.4	6 1 38.8	13 44 22.5	33.2	Sinzyō	Hattori
" " 16 44	0.29804	417.88	31.9	5.9541	31.6	6 2 1.3	13 45 21.3	32.3	"	"
" " 17 31	0.29780	418.4[illegible]	30.0	5.9551	30.5	6 3 8.8	13 47 56.3	29.6	Hottori	Sinzyō
" " 19 14	0.29816	419.61	27.8	5.9412	27.7	6 3 28.8	13 48 41.3	28.0	"	"
" " 20 6	0.29819	419.88	27.5	5.9400	27.7	6 3 45.0	13 49 10.0	27.3	Siuzyō	Hattori
" " 23 11	0.29839	419.80	26.7	5.9385	26.9	6 3 42.5	13 49 30.0	26.6	"	"
" " 23 50	0.28916	420.08	26.6	5.9387	26.7	6 4 0.0	13 49 50.0	26.5	Hattori	Sinzyō
" 7th 4 42	0.29805	419.84	26.8	5.9412	26.8	6 3 55.0	13 49 42.5	26.8	"	"
" " 5 54	0.29817	419.97	26.6	5.9393	26.8	6 3 57.5	13 49 50.0	26.5	Sinzyō	Hattori
" " 6 31	0.29803	419.87	27.2	5.9393	26.8	6 3 48.8	13 49 33.8	27.6	"	"
" " 7 37	0.29814	419.54	28.5	5.9429	28.6	6 3 38.8	13 49 13.8	28 4	"	"
" " 8 13	0.29793	418.83	30.5	5.9459	29.3	6 2 36.3	3 46 38.8	31.7	Hatori	Sinzyō
" " 8 20	0.29803	418.69	30.5	5.9459	29.3	6 2 30.0	13 46 38.8	31.7	"	"
Mean	0.29814									

$H=$ 0.29814
Reduction to 1895.0 = −754
" " sea level = 38
$H=$ 0.29807

1 b TŌKYO.

Central Meteorological Observatory (中央氣象臺).

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
June	28th	22h	5m	4	30′	14″	Sinzyō	Hattori
„	„	23	13	„	30	50	Hattori	Sinzyō
„	29th	1	10	„	30	17	Sinzyō	Hattori
„	„	3	14	„	29	50	Hattori	Sinzyō
„	30th	10	2	„	25	21	Sinzyō	Hattori
„	„	11	43	„	29	4	„	Sinzyō
„	„	12	59	„	32	26	„	„
„	„	13	48	„	32	50	Imamura	Imamura
„	„	15	18	„	32	27	Sinzyō	Sinzyō
„	„	16	42	„	31	1	Imamura	„
„	„	17	46	„	30	12	Sinzyō	Imamura
„	„	19	2	„	28	35	Imamura	Sinzyō
„	„	20	11	„	28	55	„	Imamura
„	„	21	22	„	29	37	„	„
„	„	23	49	„	29	19	„	„
July	1st	4	6	„	28	2	„	„
„	„	6	2	„	26	30	„	„
„	„	7	22	„	26	25	„	„
„	„	8	8	„	25	45	„	„
„	„	9	7	„	25	57	„	Sinzyō
„	„	10	7	„	26	40	„	„
Mean.				4	28′	52″		

$\delta = 4°\ 28'.87$

Reduction to 1895.0 = -1.27

„ „ sea level = 0.00

$\delta = 4°\ 27'.6$

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
June	30th	11h	17m	1	49	1.9	Sinzyō	Sinzyō
„	„	17	38	1	„	4.0	Imamura	„
July	1st	8	53	1	48	58.3	„	„
					49	1.4		

$\theta = 49°\ 1'.4$

Reduction to 1895.0 = -1.35

„ „ sea level = 0.00

$\theta = 49°\ 0'.0$

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t	Mean Deflections. φ_1	Mean Deflections. φ_2	Temp. t_D	Observer	Recorder
June	30th	14h	52m	0.29844	425.35	24.3C	5.8995 s	24.8C	6 8′32″.5	14 0′33″.1	23.9C	Sinzyō, Imamura	Imamura, Sinzyō
„	„	18	39	0.29791	426.61	22.1	5.8951	22.2	6 9 47.5	11 2 48.1	22.0	„, Sinzyō	„, Imamura
July	1st	9	41	0.29831	423.40	31.2	5.9111	30.4	6 6 3.8	13 54 15.6	31.9	„, Imamura	„, Sinzyō
				0.29822									

$H = 0.29822$

Reduction to 1895.0 = -671

„ „ sea level = 25

$H = 0.29816$

2. HATIŌZI.

Hongō Kawara (本 鄕 河 原).

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Declination.			Observer	Recorder
July	5th	23h	21m	4°	36′	15″	Nakamura	Ōmori
,,	6th	5	42	,,	33	57	,,	,,
,,	,,	7	28	,,	32	7	,,	,,
,,	,,	8	33	,,	31	51	,,	,,
,,	,,	9	24	,,	32	24	Kimura	Midzusima
,,	,,	10	37	,,	32	16	Midzusima	Kimura
,,	,,	11	46	,,	33	19	Kimura	Midzusima
,,	,,	13	21	,,	34	28	Midzusima	Kimura
,,	,,	14	45	,,	35	9	Nakamura	Ōmori
,,	,,	16	14	,,	34	32	Ōmori	Nakamura
,,	,,	17	15	,,	33	34	,,	,,
,,	7th	0	15	,,	35	12	Midzusima	Midzusima
Mean				4	34′	1″		

$\delta = 4°\ 34'.02$
Reduction to 1895.0 = 1.33
,, ,, sea level = −0.01
$\delta = 4°\ 35'.3$

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
June	25th	17h	27.6m	4°	33′	12″	Nakamura	Imamura
,,	,,	18	4.1	,,	33	0	Tamaru	,,
,,	,,	19	25.8	,,	32	43	Imamura	,,
,,	,,	20	45.0	,,	33	8	,,	Nakamura
,,	,,	21	46.0	,,	33	16	Nakamura	Tamaru
,,	,,	22	21.5	,,	33	38	Imamura	Imamura
,,	23th	3	52.4	,,	32	18	,,	,,
,,	,,	5	26.3	,,	30	22	,,	,,
,,	,,	6	53.0	,,	28	59	,,	,,
,,	,,	7	55.2	,,	28	57	Nakamura	Nakamura
,,	,,	9	4.6	,,	29	35	Tamaru	Tamaru
,,	,,	10	57.6	,,	34	35	Nakamura	Nakamura
,,	,,	11	48.1	,,	36	15	,,	,,
,,	,,	12	49.3	,,	38	26	,,	,,
,,	,,	13	56.4	,,	38	38	Tamaru	Tamaru
,,	,,	14	58.3	,,	37	3	,,	,,
,,	,,	15	52.1	,,	37	23	Nakamura	,,
,,	,,	16	38.2	,,	33	50	,,	,,
Mean				4	34′	3″		

$\delta = 4°\ 34'.05$
Reduction to 1895.0 = −0.43
,, ,, sea level = 0.01
$\delta = 4°\ 33'.6$

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	Dip.		Observer	Recorder
July	6th	6h	56.6m	1	49°	1′.9	Ōmori	Nakamura
,,	,,	10	11.6	1	,,	5.2	Midzusima	Kimura
,,	,,	2	16.9	1	,,	1.5	,,	,,
,,	,,	5	28.5	1	48	59.6	Nakamura	Ōmori
Mean					49	2′.1		

$\theta = 49°\ 2'.1$
Reduction to 1895.0 = 1.19
,, ,, sea level = −0.01
$\theta = 49°\ 3'.3$

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
June	25th	2h	23m	1	48	59.9	Imamura	Imamura
,,	26th	7	26	—	49	6.2	,,	,, Nakamura
,,	,,	10	25	1	49	0.4	Tamara	Tamaru
,,	,,	16	17	1	49	2.1	Nakamura	,,
Mean					49°	1.9		

$\theta = 49$ 1.9
Reduction to 1895.0 = −0.39
,, ,, sea level = −0.01
$\theta = 49$ 1.5

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M*)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	6th	1h	27m	*0.29729	479.91	22.7C	5.5174 s	22.8C	(7 0′12″.5	16° 5′ 0″.0	22.7C)	Ōmori	Nakamura
,,	,,	8	17	0.29752	479.51	23.3	5.5176	23.2	6 58 50.6	15 50 7.5	23.3	Nakamura	Ōmori
,,	,,	11	23	0.29660	478.10	29.3	5.5351	29.5	6 59 50.0	15 54 2.5	29.1	Midzusima	Kimura
,,	,,	15	35	0.29773	476.28	29.0	5.5349	29.2	6 56 56.3	15 47 46.3	28.7	Nakamura	,,
Mean				0.29727									

$H = 0.29727$
Reduction to 1895.0 = 678
,, ,, sea level = 140
$H = 0.29735$

Observations of the East Party, 1895.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
June	25th	18h	48m	0.29786	437.12	20.5C	5.8240 s	20.5C	6 19′26″.9	14 25′54″.4	20.5C	Nakamura	Tamaru
,,	,,	21	24	0.29794	436.99	20.1	5.8249	20.5	6 19 27.5	14 26 1.4	19.8	Imamura	Nakamura
,,	26th	8	37	0.29786	437.19	19.8	5.8238	20.0	6 19 36.2	14 26 16.9	19.7	Tamaru	,,
,,	,,	15	33	0.29824	436.33	21.1	5.8260	21.4	6 18 32.5	14 24 5.0	20.8	Nakamura	Tamaru
Mean				0.29798									

$H = 0.29798$
Reduction to 1895.0 = −219
,, ,, sea level = 140
$H = 0.29797$

3. SARUHASI.

North bank, 110m. down the bridge. (猿橋ノ下流一町許ノ北岸畠中)

DECINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Declination			Observer	Recorder
July	8th	11h	57m	5	14′	22″	Kimura	Ōmori
,,	,,	12	59	,,	15	55	Ōmori	Midzusima
,,	,,	14	5	,,	7	51	Kimura	Nakamura
,,	,,	15	25	,,	7	44	,,	,,
,,	,,	17	2	,,	6	17	,,	,,
,,	,,	17	18	,,	5	51	Nakamura	Kimura
,,	,,	18	25	,,	4	13	,,	,,
,,	,,	18	47	,,	4	19	,,	,,
,,	,,	20	52	,,	4	5	Midzusima	Ōmori
,,	9th	5	8	,,	2	25	,,	,,
,,	,,	5	58	,,	2	22	,,	Midzusima
,,	,,	7	7	,,	0	30	,,	,,
,,	,,	8	45	,,	0	21	Nakamura	Kimura
,,	,,	10	12	,,	2	2	Kimura	Nakamura
Mean				5°	4′	2″		

$\delta = 5$ 4.03
Reduction to 1895.0 = 1.40
,, ,, sea level = −0.02
$\delta = 5°$ 5.4

DIP (θ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	Dip.		Observer	Recorder
July	8th	15h	3.8m	1	49	46.5	Kimura	Nakamura
,,	,,	23	44.8	1	,,	46.1	Ōmore	,,
,,	9th	6	36.2	1	,,	44.9	Midzusima	Midzusima
Mean					49°	45.8		

$$
\begin{aligned}
&& \theta = 49^\circ\ & 45.8 \\
\text{Reduction to} && 1895.0 = & \quad 0.45 \\
\text{,,} \quad \text{,,} && \text{sea level} = & -0.03 \\
\hline
&& \theta = & \quad 40.2
\end{aligned}
$$

HORIZONTAL INTENSITY (*H*)
(* *Value deduced from Vibration only by assuming Value of M.*)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
							s						
July	8th	12h	43m	0.29195	478.65	25.6C	5.5752	25.7C	7 6′ 9″.4	16 7′12″.5	25.6C	Midzusima	Ōmori
,,	,,	16	36	*0.29156	478.58	24.7	5.5763	24.7	—	—	—	Kimura	Nakamura
,,	,,	20	26	0.29226	479.30	22.3	5.5684	22.4	7 8 31.9	16 16 6.9	22.2	Nakamura	Kimura
,,	9th	8	27	0.29232	477.78	26.3	5.5774	26.6	7 5 27.5	16 6 32.5	26.1	,,	,,
Mean				0.29202									

$$
\begin{aligned}
&& H = & \ 0.29202 \\
\text{Reduction to} && 1895.0 = & \qquad 924 \\
\text{,,} \quad \text{,,} && \text{sea level} = & \qquad 394 \\
\hline
&& H = & \ 0.29215
\end{aligned}
$$

4. KŌHU

In old castle (舊城內)

DECLINATION (δ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Declination			Observer	Recorder
July	10th	15h	59m	4	55′	7″	Midzusima	Kimura
,,	,,	17	50	,,	52	48	,,	,,
,,	,,	18	48	,,	52	2	Kimura	Midzusima
,,	11th	1	0	,,	51	25	Ōmori	Nakamura
,,	,,	5	36	,,	50	3	,,	,,
,,	,,	7	14	,,	45	10	Nakamura	Ōmori
,,	,,	7	33	,,	47	23	Ōmori	Nakamura
,,	,,	8	57	,,	46	53	Kimura	Kimura
,,	,,	9	28	,,	48	7	,,	Midzusima
,,	,,	10	44	,,	51	27	Midzusima	Kimura
,,	,,	11	1	,,	51	57	,,	,,
,,	,,	12	0	,,	55	19	Kimura	Midzusima
,,	,,	13	18	,,	58	27	Midzusima	Kimura
,,	,,	13	47	,,	58	53	,,	,,
,,	,,	14	22	,,	58	16	Nakamura	Nakamura
,,	,,	15	2	,,	57	35	,,	Ōmori
,,	,,	15	51	,,	56	30	Ōmori	Nakamura
,,	12th	7	16	,,	50	42	Midzusima	,,
,,	,,	8	50	,,	52	57	Kimura	Ōmori
,,	,,	10	21	,,	55	3	Ōmori	Kimura
,,	,,	11	43	,,	58	24	Kimura	Ōmori
,,	,,	12	40	,,	58	47	Ōmori	Kimura
,,	,,	13	50	,,	59	50	Kimura	Nakamura
,,	,,	14	42	,,	59	45	Nakamura	Kimura
,,	,,	15	26	,,	58	51	Midzusima	Nakamura
				To be continued				

Continued

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 12th 16h 12m	4° 58′ 12″	Nakamura	Midzusima
,, ,, 16 55	,, 57 10	Midzusima	Nakamura
,, ,, 18 9	,, 56 46	Nakamura	Midzusima
,, ,, 18 47	,, 56 40	Midzusima	Nakamura
,, ,, 21 8	,, 56 34	Kimura	Ōmori
Mean	4 51′ 53″		

$\delta = 4°\ 51'.88$
Reduction to 1895.0 = 1.55
,, ,, sea level = −0.02
$\delta = 4°\ 53'.4$

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 10th 18h 25.3m	1	50° 11′.8	Midzusima	Kimura
,, 11th 8 23.5	1	,, 12.9	Ōmori	Nakamura
,, 12th 1 26.9	1	,, 12.1	Nakamura	Midzusima
,, ,, 3 50.3	1	,, 15.6	Midzusima	Nakamura
Mean		50 13′.1		

$\theta = 50°\ 13'.1$
Reduction to 1895.0 = 0.30
,, ,, sea level = 0.02
$\theta = 50°\ 13'.4$

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M*)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 11th 6h 59m	0.28860	477.39	25°.9C	5.6150	25.8C	7° 9′ 30″.6	16 14′23″.1	26°.0C	Nakamura	Ōmori
,, 12th 7 59	0.28858	475.74	28.0	5.6250	28.3	7 8 58.8	16 14 34.4	27.8	Midzusima	Nakamura
,, ,, 9 45	0.28939	473.96	31.6	5 6288	32.2	7 6 43.9	16 10 12.1	31.0	Kimura	Ōmori
,, ,, 11 24	*0.28879	473.50	35.0	5.6361	35.0	(7 11 58.8	16 15 32.5	32.9)	Ōmori	Kimura
,, ,, 12 18	*0.28912	472.59	36.4	5.6380	37.5	(7 3 10.9	16 13 15.0	35.3)	Kimura	Ōmori
,, ,, 13 34	0.28900	473.41	35.3	5.6355	35.9	7 6 16.2	16 8 21.7	34.7	Ōmori	Kimura
,, ,, 14 29	*0.28867	473.39	35.3	5.6760	37.8	(7 6 5.0	16 7 11.2	35.3)	Nakamura	,,
,, ,, 15 12	0.28901	472.65	36.7	5.6404	37.5	7 5 41.9	16 7 10.6	36.0	Midzusima	Nakamura
,, ,, 16 0	*0.28960	473.15	36.0	5.6356	36.0	(7 1 48.1	16 9 38.1	34.2)	Nakamura	Midzusima
,, ,, 16 41	0.28898	474.68	32.3	5.6274	32.6	7 7 19.4	16 10 38.1	32.0	Midzusima	Nakamura
,, ,, 17 58	*0.28866	474.81	31.3	5.6282	31.3	(7 9 11.2	16 12 11.2	30.5)	Nakamura	Midzusima
,, ,, 18 35	0.28822	475.93	30.3	5.6277	30.6	7 8 51.4	16 13 8.8	29.9	Midzusima	Nakamura
,, ,, 20 39	0.28893	475.94	27.3	5.6198	27.1	7 9 23.8	16 16 53.4	27.4	Kimura	Ōmori
,, 13th 0 23	0.28902	476.45	25.0	5.6172	25.6	7 8 21.2	16 11 48.7	24.5	Midzusima	Nakamura
,, ,, 2 49	0.28875	477.53	23.6	5.6126	23.6	7 7 1.2	16 16 12.5	23.5	Nakamura	Midzusima
Mean	0.28885									

$H = 0.28885$
Reduction to 1895.0 = 1103
,, ,, sea level = 330
$H = 0.28899$

5. UMINOKUTI.

Osidori Hot Spring (鴛鴦溫泉)

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	14th	18h	36m	4	15′	6″	Nakamura	Kimura
,,	,,	19	32	,,	14	58	,,	,,
,,	,,	20	44	,,	15	11	,,	,,
Mean				4	15′	3″		

$\delta =$ 4° 15′.05

Reduction to 1895.0 = 1.67

,, ,, sea level = −0.08

$\delta =$ 4° 16′.6

DIP (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	δ		Observer	Recorder
July	14th	17h	42.6m	1	49	17′.6	Midzusima	Ōmori
,,	,,	20	14.8	1	,,	14.3	Ōmori	Kimura
Mean					49	16′.0		

$\theta =$ 49° 16′.0

Reduction to 1895.0 = 0.29

,, ,, sea level = −0.09

$\theta =$ 49° 16′.2

HORIZONTAL INTENSITY (H)

(*Value deduced from Vibration only by assuming Value of M.)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflection φ_1	Mean Deflection φ_2	Temp. t_D	Observer	Recorder
July	14th	18h	18m	*0.29815	475.98	23.6C	5.5324 s	23.6C	(6 59′ 45″.6	15 49′ 22″.5	22.7C)	Nakamura	Kimura
,,	,,	21	9	0.29801	476.51	22.0	5.5311	22.5	6 57 12.5	15 48 45.0	21.5	Ōmori	,,
Mean				0.29808									

$H =$ 0.29808

Reduction to 1895.0 = 1139

,, ,, sea level = 1370

$H =$ 0.29833

6. USUTA

In mulberry field, near to Jinjya (神社近傍ナル桑畑ノ中)

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	15th	20h	48m	4	38′	30″	Midzusima	Kimura
,,	16th	1	23	,,	38	7	,,	Midzusima
,,	,,	4	5	,,	37	28	,,	,,
,,	,,	7	13	,,	34	7	,,	,,
,,	,,	8	55	,,	32	8	Kimura	Nakamura
,,	,,	10	46	,,	39	39	,,	,,
,,	,,	11	34	,,	42	15	Nakamura	Kimura
,,	,,	13	5	,,	46	28	Kimura	,,
Mean				4	38′	56″		

$\delta =$ 4° 38′.93

Reduction to 1895.0 = 1.78

,, ,, sea level = −0.05

$\delta =$ 4° 40′.7

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 15^{th} 22^h $10.^m2$	1	49° 49.′3	Ōmori	Nakamura
„ 16^{th} 8 24.8	1	„ 46.1	Nakamura	Kimura
Mean		49 47.′7		

$\theta = 49°\ 47.'7$
Reduction to 1895.0 = −0.15
„ „ sea level = 0.06
$\theta = 49°\ 47.'5$

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M*)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 16^{th} 3^h 12^m	0.29954	477.77	21.°5 C	5.5094 s	21.°9 C	6° 55′ 10.″6	15° 42′ 31.″9	21.°2 C	Midzusima	Midzusima
„ „ 10 28	0.29905	474.19	32.4	5.5343	32.5	6 52 29.3	15 36 25.6	32.3	Kimura	Nakamura
„ „ 11 19	*0.29912	473.60	34.2	5.5175	35.5	(6 51 54.3	15 35 11.9	34.2	Nakamura	Kimura
Mean	0.29924									

$H = 0.29924$
Reduction to 1895.0 = 1168
„ „ sea level = 955
$H = 0.29945$

7. KOMORO.

Sakanoue No. 3018 (坂ノ上三千〇十八番地)

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 17^{th} 2^h 54^m	4° 46′ 32″	Nakamura	Nakamura
„ „ 7 37	„ 40 11	„	Kimura
„ „ 8 30	„ 40 13	„	„
„ „ 9 39	„ 42 8	Midzusima	Ōmori
„ „ 10 54	„ 46 51	Ōmori	Midzusima
„ „ 11 46	„ 48 29	Midzusima	Ōmori
„ „ 12 43	„ 51 41	Ōmori	Midzusima
„ „ 13 45	„ 52 55	Midzusima	Ōmori
„ „ 14 36	„ 52 29	Kimura	Nakamura
„ „ 15 59	„ 50 54	„	„
„ „ 16 39	„ 49 53	Nakamura	Kimura
„ „ 17 22	„ 47 38	„	„
„ „ 18 34	„ 44 41	Kimura	Nakamura
„ „ 19 31	„ 45 16	„	„
„ „ 21 4	„ 46 22	„	Kimura
„ „ 24 59	„ 45 59	Midzusima	Ōmori
„ 18^{th} 1 5	„ 46 13	„	Nakamura
„ „ 2 59	„ 45 50	Nakamura	Midzusima
Mean	4 46′ 0″		

$\delta = 4°\ 46.'00$
Reduction to 1895.0 = 1.84
„ „ sea level = −0.04
$\delta = 4°\ 47.'8$

DIP (θ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 16th 21h 23.2m	2	50° 0′.1	Midzusima	Midzusima
„ 17th 0 13.9	1	49 44.6	Nakamura	Kimura
„ „ 9 23.6	1	50 0	Ōmori	Ōmori
„ „ 13 8.0	1	„ 0.5	Midzusima	„
„ „ 17 7.9	1	49 47.1	Nakamura	Kimura
„ „ 18 1.8	1	„ 50.6	Kimura	Nakamura
„ „ 18 58.0	1	50 3.9	Nakamura	Kimura
„ 18th 2 16.7	1	49 59.5	Midzusima	Nakamura
„ „ 2 13.5	1	„ 52.7	Nakamura	Midzusima
Mean		49° 55′.4		

$\theta = 49$ 55′.4
Reduction to 1895.0 = −0.58
„ „ sea level = −0.04
$\theta = 49$ 54′.8

HORIZONTAL INTENSITY (H)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 17th 8h 19m	0.29494	475.51	27°.2C	5.5666s	28°.1C	6°59′ 6″.8	15 50′41″.2	26°.4C	Nakamura	Kimura
„ „ 10 30	0.29468	473.94	33.8	5.5786	34.3	6 58 18.8	15 49 29.4	33.3	Midzusima	Ōmori
„ „ 12 26	0.29473	474.52	30.9	5.5755	32.3	6 59 2.5	15 51 15.0	29.6	„	„
„ „ 15 41	0.29453	477.17	26.2	5.5582	25.8	7 0 36.9	15 53 55.0	26.7	Kimura	Nakamura
„ „ 16 27	0.29526	475.43	28.7	5.5632	29.1	6 58 57.5	15 51 11.9	28.3	Nakamura	Kimura
Mean	0.29483									

$H =$ 0.29483
Reduction to 1895.0 = 1206
„ „ sea level = 735
$H =$ 0.29502

8. MIYOTA.

Common School. (小 學 校)

DECLINATION (δ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 18th 10h 32m	4° 40′ 4″	Kimura	Ōmori
„ „ 11 46	„ 41 46	Midzusima	Nakamura
„ „ 12 13	„ 42 58	Nakamura	Midzusima
„ „ 12 50	„ 44 0	Midzusima	Nakamura
Mean	4 40′ 52″		

$\delta = 4°$ 40′.87
Reduction to 1895.0 = 1.82
„ „ sea level = −0.06
$\delta = 4°$ 42′.6

DIP (θ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	Dip	Observer	Recorder
July 18th 9h 49.9m	1	49° 56′.2	Midzusima	Nakamura
„ „ 12 1.3	—	„ 52.2	Nakamura	Midzusima
„ „ 13 9.6	1	50 4.6	Ōmori	„
Mean		49° 57′.7		

$\theta = 49°$ 57′.7
Reduction to 1895.0 = −0.44
„ „ sea level = −0.06
$\theta = 49°$ 57′.2

HORIZONTAL INTENSITY (*H*)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 18th 11^h 26^m	0.29634	474.65	31.6C	s 5.5562	31.5C	6 56′28.″2	15 45′25.″7	31.7C	Ōmori	Kimura
,, ,, 12 39	0.29633	474.54	33.7	5.5569	33.5	6 56 5.0	15 44 10.0	33.9	Midzusima	Nakamura
Mean	0.29634									

H = 0.29634
Reduction to 1895.0 = 1110
,, ,, sea level = 1032
H = 0.29655

9. KARUISAWA.

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Declination	Observer	Recorder
July. 18th 20^h 22^m	4° 42′ 10″	Nakamura	Kimura
,, 19th 5 45	,, 39 35	Ōmori	Ōmori
,, ,, 7 11	,, 36 56	,,	,,
,, ,, 8 56	,, 37 44	Nakamura	Nakamura
,, ,, 10 0	,, 37 37	,,	Midzusima
,, ,, 10 41	,, 41 10	Midzusima	Nakamura
,, ,, 11 44	,, 42 39	,,	,,
,, ,, 12 30	,, 44 17	Nakamura	Midzusima
,, ,, 13 17	,, 45 29	,,	,,
,, ,, 14 40	,, 46 51	Ōmori	Ōmori
,, ,, 15 24	,, 45 58	,,	,,
,, ,, 16 28	,, 44 35	,,	,,
,, ,, 17 24	,, 44 32	Nakamura	,,
,, ,, 18 56	,, 41 12	,,	,,
,, ,, 20 11	,, 41 48	,,	,,
,, ,, 21 42	,, 41 38	Midzusima	Midzusima
,, 20th 6 38	,, 39 30	,,	,,
,, ,, 8 47	,, 39 5	Ōmori	Ōmori
,, ,, 9 40	,, 39 13	Nakamura	,,
Mean	4° 41′ 46″		

δ = 4 41.′77
Reduction to 1895.0 = 1.79
,, ,, sea level = −0.07
δ = 4 43.′5

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	Dip	Observer	Recorder
July 19th 6^h 45.6^m	1	49 44.0	Ōmori	Ōmori
,, ,, 9 37.8	1	,, 46.8	Nakamura	Nakamura
,, ,, 11 7.8	1	,, 48.6	Midzusima	,,
,, ,, 14 1.5	1	,, 56.6	Ōmori	Ōmori
,, ,, 15 59.6	2	50 1.6	,,	,,
,, ,, 17 5.4	2	,, 1.9	,,	,,
,, ,, 19 35.2		,, 6.9	,,	Nakamura
,, 20th 7 17.2	2	49 47.3	Midzusima	Midzusima
,, ,, 8 11.7	1	,, 48.2	Ōmori	Ōmori
,, ,, 9 22.8	1	,, 42.2	Nakamura	,,
,, ,, 10 32.6	1	,, 42.3	Ōmori	,,
Mean		49° 51.′5		

θ = 49° 51.′5
Reduction to 1895.0 = −0.29
,, ,, sea level = −0.07
θ = 49 51.′1

HORIZONTAL INTENSITY (H)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 19th 10h 28m	0.29705	475.98	26.2C	5.5448	27.0C	6°57′ 5″.6	15 47′11″.9	25.4C	Midzusima	Nakamura
" " 13 8	0.29696	475.15	27.1	5.5480	27.3	6 56 28.1	15 45 44.4	26.9	Nakamura	Midzusima
" " 18 43	0.29690	476.43	22.7	5.5418	23.2	6 57 24.4	15 47 13.7	22.3	"	Omori
" " 21 18	0.29695	476.60	19.8	5.5400	20.2	6 58 3.8	15 49 33.1	19.4	Ōmori	Midzusima
Mean	0.29696									

$H =$ 0.29696
Reduction to 1895.0 = 1051
" " sea level = 1251
$H =$ 0.29719

10. KUTUKAKE.

Pine wood by Asama road. (淺間街道道傍ノ松林)

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 20th 19h 6.0m	1	49 28.1	Ōmori	Kimura
" " 20 0	1	" 34.6	Kimura	Ōmori
Mean		49° 31.3		

$\theta =$ 49 31.3
Reduction to 1895.0 = −0.43
" " sea level = −0.07
$\theta =$ 49° 30.8

HORIZANTAL INTENSITY (H)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflection φ_1	Mean Deflection φ_2	Temp. t_D	Observer	Recorder
July 20th 21h 54m	0.29524	477.80	20.0C	5.5340	20.3C	7 0′36″.3	15 54′2″.5	19.7C	Nakamura	Midzusima

$H =$ 0.29524
Reduction to 1895.0 = 1124
" " sea level = 1277
$H =$ 0.29548

11. UEDA.

Play ground of high common school. (高等小學校運動場)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 23rd 19h 17m	4 59′ 15″	Midzusima	Nakamura
" " 20 11	5 1 35	Nakamura	Midzusima
" " 23 11	" 4 2	Midzusima	Nakamura
" 24th 0 29	" 4 37	Kimura	Midzusima
" " 1 32	" 3 57	Midzusima	Nakamura
" " 1 44	" 3 22	Nakamura	Midzusima
Mean.	5° 2 53″		

$\delta =$ 5 2.88
Reduction to 1895.0 = 1.87
" " sea level = 0.03
$\delta =$ 5 4.7

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time)	Needle No.	θ	Observer	Recorder
July 23rd 16h 36.0m	1	50° 3.5	Midzusima	Nakamura
,, ,, 19 42.0	1	,, 3.0	Nakamura	Midzusima
Mean		50 3.3		

θ 50 33.3
Reduction to 1895.0 −0.72
,, ,, sea level −0.03
θ = 50 32.5

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assming Value of M*)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 23th 18h 46m	0.29838	473.86	28.0C	s 5.5291	29.1C	6 52′50.″0	15 36′ 8.″1	26.9C	Kimura	Midzusima
,, 24th 0 2	*0.29866	474.83	23.8	5.5188	23.8	(6 51 29.4	15 31 29.4	23.6)	Midzusima	Nakamura
,, ,, 1 15	0.29860	474.86	23.7	5.5196	23.9	6 53 45.0	15 39 3.8	23.5	Nakamura	Midzusima
Mean	0.29855									

H = 0.29855
Reduction to 1895.0 = 1324
,, ,, sea level = 555
H = 0.29874

12. KAMISUWA.

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 24th 23h 29m	4° 15′ 20″	Midzusima	Kimura
,, 25th 10 28	,, 46 3	Nakamura	,,
,, ,, 11 35	,, 37 20	,,	,,
,, ,, 12 50	,, 42 21	Kimura	Nakamura
,, ,, 15 5	,, 41 58	,,	,,
,, ,, 15 9	,, 39 30	,,	,,
,, ,, 15 22	,, 47 31	,,	,,
,, ,, 16 28	,, 50 53	Midzusima	,,
,, ,, 17 54	,, 49 24	Nakamura	Midzusima
,, ,, 19 41	,, 51 5	,,	Nakamura
,, ,, 23 20	,, 51 18	Ōmori	,,
,, 26th 7 47	,, 42 55	Nakamura	Ōmori
,, ,, 8 55	,, 14 36	Ōmori	Nakamura
,, ,, 11 31	,, 18 3	Kimura	Kimura
,, ,, 12 3	,, 48 5	,,	,,
,, ,, 13 37	,, 49 22	Nakamura	,,
,, ,, 14 3	,, 50 45	,,	Nakamura
,, ,, 14 37	,, 18 6	,,	,,
Mean	4° 47′ 46″		

δ = 4 47.77
Reduction to 1895.0 = 1.74
,, ,, sea level = −0.05
δ = 4° 49.5

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 24th 22h 7.4m	1	49° 14′.9	Nakamura	Nakamura
,, 25th 12 13.8	1	,, 49.4	,,	Kimura
,, ,, 17 8.3	1	,, 50.2	Midzusima	Nakamura
,, ,, 21 30.3	1	,, 41.4	Ōmori	,,
,, 26th 10 1.8	1	,, 36.5	Kimura	Kimura
Mean		49 44.5		

θ = 49° 44′.5
Reduction to 1895.0 = −0.57
,, ,, sea level = −0.06
θ = 49° 43′.7

HORIZONTAL INTENSITY (H)

(*Value deduced from Vibration only by assuming Value of M.)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflection φ_1	Mean Deflection φ_2	Temp. t_D	Observer	Recorder
July 25th 1h 29m	*0.29892	475.40	22.0C	5.5128 s	22.0C	(6.51′31″.2	15 34′ 2″.5	19.2C)	Midzusima	Midzusima
,, ,, 11 25	0.29849	472.89	29.3	5.5332	29.8	6 52 30.0	15 36 45.6	28.9	Nakamura	Kimura
,, ,, 14 5	*0.29842	471.79	34.7	5.5390	34.7	(6 56 9.1	15 37 7.5	32.6)	Kimura	Nakamura
,, ,, 19 14	0.29807	474.22	27.4	5.5300	28.4	6 53 46.9	15 38 43.1	26.5	,,	,,
,, 26th 8 35	0.29821	474.30	25.5	5.5253	24.9	6 53 24.4	15 38 8.1	26.2	Nakamura	Ōmori
,, ,, 13 20	0.29896	472.97	31.2	5.5299	32.4	6 51 52.5	15 34 48.1	30.1	{ Kimura ,,	{ Kimura Nakamura
Mean	0.29851									

H = 0.29851
Reduction to 1895.0 = 1238
,, ,, sea level = 916
H = 0.29872

13. MATUMOTO.

Middle School. (松本中學校)

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 27th 12h 32m	4 33′ 10″	Nakamura	Kimura
,, ,, 14 26	,, 34 0	Kimura	Nakamura
,, ,, 15 38	,, 33 18	Ōmori	Ōmori
,, ,, 16 31	,, 32 1	,,	Midzusima
,, 28th 10 20	,, 27 15	Midzusima	Nakamura
,, ,, 10 35	,, 28 5	,,	,,
,, ,, 10 49	,, 28 54	Nakamura	Midzusima
,, ,, 11 3	,, 29 30	Ōmori	Nakamura
,, ,, 11 22	,, 29 15	,,	,,
,, ,, 12 55	,, 31 17	Midzusima	Midzusima
,, ,, 13 50	,, 32 9	,,	,,
,, ,, 15 9	,, 30 30	,,	,,
,, ,, 15 56	,, 29 57	,,	,,
,, ,, 17 9	,, 28 1	,,	,,
,, ,, 18 1	,, 26 12	,,	,,
,, ,, 18 52	,, 27 15	,,	,,
,, ,, 19 19	,, 28 6	,,	,,
,, ,, 20 55	,, 27 43	Ōmori	Ōmori
,, ,, 21 14	,, 27 15	,,	Kimura
Mean	4 29′ 4″		

δ = 4° 29′.4
Reduction to 1895.0 = 1.82
,, ,, sea level = −0.07
δ = 4° 30′.8

Date and Hour (Mean Local Times.)				δ			Observer	Recorder
July	29h	3h	51m	4°	40′	19″	Kimura	Ōmori
,,	,,	4	21	..	40	46	Ōmori	Kimura
,,	,,	6	13	..	38	41	Kimura	Ōmori
,,	,,	7	37	..	34	15	Ōmori	Kimura
,,	,,	8	7	..	33	57	Kimura	Ōmori
,,	,,	8	31	..	33	8	Ōmori	Kimura
,,	,,	9	48	..	36	51	Nakamura	Midzusima
,,	,,	10	52	..	41	4	Midzusima	Nakamura
,,	,,	11	44	..	42	52	Nakamura	Midzusima
,,	,,	12	55	..	47	4	Midzusima	Nakamura
,,	,,	13	1	..	45	26	,,	,,
,,	,,	13	41	..	45	35	Nakamura	Midzusima
,,	,,	14	21	..	44	48	Ōmori	Ōmori
,,	,,	14	52	..	43	49	,,	,,
,,	,,	15	21	..	43	20	,,	,,
,,	,,	15	50	..	42	46	,,	,,
,,	,,	17	1	..	40	22	Midzusima	Nakamura
,,	,,	17	31	..	39	39	Nakamura	Midzusima
,,	,,	18	12	..	39	48	,,	,,
,,	,,	18	40	..	39	21	Midzusima	Nakamura
,,	,,	19	33	..	40	30	,,	,,
,,	,,	20	8	..	40	14	Ōmori	Midzusima
,,	,,	21	30	..	39	58	,,	Nakamura
,,	,,	22	38	..	38	24	Nakamura	,,
,,	,,	23	15	..	38	20	,,	,,
,,	30th	0	25	..	38	38	,,	,,
,,	,,	1	30	..	37	33	,,	,,
,,	,,	2	47	..	37	42	,,	,,
,,	,,	5	59	..	35	39	,,	,,
,,	,,	6	12	..	35	19	,,	,,
Mean				4°	40′	0″		

$\delta = 4° \; 40'.0$

Reduction to 1895.0 = 1.89

,, ,, sea level = −0.05

$\delta = 4° \; 41'.8$

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	28th	8h	55.5m	1	50°	3′.0	Kimura	Nakamura
,,	,,	12	18.7	1	49	59.0	Midzusima	Midzusima
,,	,,	13	23.5	1	,,	59.8	,,	,,
,,	,,	14	24.8	1	50	1.2	,,	,,
,,	,,	15	34.7	1	,,	1.0	,,	,,
,,	,,	17	20.6	1	,,	1.8	,,	,,
,,	,,	17	42.5	1	,,	1.7	,,	,,
,,	,,	19	5.5	1	,,	1.6	,,	,,
,,	,,	19	24.7	1	,,	1.8	,,	,,
Mean					50°	1′.2		

$\theta = 50° \; 1'.2$

Reduction to 1895.0 = −0.72

,, ,, sea level = −0.06

$\theta = 50° \; 0'.4$

HORIZONTAL INTENSITY (H)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_v	Observer	Recorder
July	27th	13^h	40^m	*0.29578	473.24	28.4C	5.5377 s	29.6C	(6 56′ 1″.5	15 44′ 9″.4	28.4C)	Kimura	Nakamura
,,	,,	22	4	0.29585	476.56	17.2	5.5354	17.6	6 59 31.2	15 52 45.6	16.9	Nakamura	Kimura
,,	28th	8	5	0.29574	475.82	19.6	5.5419	20.5	6 59 10.0	15 51 58.1	18.7	Kimura	Nakamura
,,	29th	5	38	0.59585	477.01	16.0	5.5323	15.9	6 59 34.4	15 52 29.4	16.0	Ōmori	Kimura
,,	,,	6	56	0.29561	476.34	18.9	5.5404	19.8	6 59 35.7	15 52 38.1	18.1	Kimura	Ōmori
,,	,,	9	30	0.29552	474.33	25.8	5.5550	27.9	6 58 6.9	15 49 10.6	23.8	Nakamura	Midzusima
,,	,,	10	34	0.29551	473.80	26.5	5.5570	27.7	6 57 30.6	15 47 58.7	25.4	Midzusima	Nakamura
,,	,,	11	29	0.29556	473.88	26.5	5.5540	26.6	6 57 6.9	15 46 56.9	26.4	Nakamura	Midzusima
,,	,,	12	43	0.29603	472.64	30.3	5.5582	30.9	6 55 52.5	15 44 48.1	29.7	Midzusima	Nakamura
,,	,,	13	32	0.29540	472.63	31.1	5.5630	31.8	6 55 59.4	15 43 51.9	30.5	Nakamura	Midzusima
,,	,,	16	55	0.29603	471.05	34.2	5.5672	34.5	6 54 8.1	15 40 30.6	33.9	Midzusima	Nakamura
,,	,,	17	57	0.29564	472.85	29.0	5.5600	29.3	6 56 5.0	15 44 34.4	28.8	Nakamura	Midzusima
,,	,,	19	13	0.29584	473.92	26.7	5.5514	26.9	6 56 43.4	15 45 54.4	26.5	Midzusima	Nakamura
,,	,,	21	12	0.29572	473.92	25.8	5.5526	26.2	6 57 2.5	15 46 48.1	25.5	{ Ōmori { ,,	{ Midzusima { Nakamura
,,	,,	22	11	0.29590	474.19	24.4	5.5487	24.3	6 57 6.9	15 47 19.4	24.5	Nakamura	Ōmori
				0.29573									

H=0.29573

Reduction to 1895.0= 1287

,, ,, sea level= 890

H=0.29595

14. ŌMATI.

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	30th	21^h	51^m	4°	55′	54″	Nakamura	Kimura
,,	,,	22	59	,,	56	4	Midzusima	Midzusima
,,	,,	23	45	,,	55	40	,,	,,
,,	31st	0	43	,,	55	18	,,	,,
,,	,,	1	52	,,	54	52	,,	,,
,,	,,	2	30	,,	54	21	,,	,,
,,	,,	4	14	,,	54	50	,,	,,
,,	,,	5	0	,,	54	21	,,	,,
,,	,,	6	9	,,	52	53	,,	,,
,,	,,	6	50	,,	51	7	,,	,,
,,	,,	7	38	,,	50	10	,,	,,
,,	,,	8	24	,,	50	11	,,	,,
,,	,,	9	0	,,	51	8	,,	,,
,,	,,	9	26	,,	52	9	,,	,,
,,	,,	10	13	,,	54	11	,,	,,
,,	,,	11	56	,,	58	31	Kimura	Nakamura
,,	,,	12	27	,,	59	10	Nakamura	Kimura
,,	,,	13	2	5	0	4	,,	Nakamura
,,	,,	13	33	4	59	46	Kimura	,,
,,	,,	14	13	,,	59	39	Nakamura	Kimura
,,	,,	15	17	,,	58	58	Kimura	Ōmori
,,	,,	16	19	,,	56	45	Ōmori	Nakamura
,,	,,	16	53	,,	56	28	Nakamura	Ōmori
,,	,,	17	58	,,	54	38	Ōmori	Nakamura
,,	,,	19	39	,,	55	39	Nakamura	Ōmori
,,	,,	20	30	,,	55	25	Ōmori	Kimura
,,	,,	21	49	,,	55	9	Kimura	,,
Aug.	1st	0	0	,,	54	17	,,	Ōmori
,,	,,	0	43	,,	54	1	Ōmori	Kimura
Mean				4°	55′	10″		

δ=4° 56′.17

Reduction to 1895.0= 1.94

,, ,, sea level= −0.05

δ=4 57′.0

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 30th 21h 30.0m	1	50° 15′.6	Ōmori	Nakamura
„ 31st 1 24.9		„ 15.8	Midzusima	Midzusima
„ „ 7 14.3	—	„ 16.8	„	„
Aug. 1st 0 23.0	1	„ 24.1	Ōmori	Ōmori / Kimura
„ „ 1 12.4	1	„ 12.6	„	Ōmori
Mean		50 17′.0		

θ = 50° 17′.0
Reduction to 1895.0 = −0.99
„ „ sea level = −0.05
θ = 50 16′.0

HORIZONTAL INTENSITY (H)

(*Value deduced from Vibration only by assuming Value of M)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflection φ_1	Mean Deflection φ_2	Temp. t_D	Observer	Recorder
July 31st 11h 38m	0.29588	470.87	33.1C	5.5714s	34.3C	6°54′55″.6	15°43′ 4″.4	32.5C	Kimura	Nakamura
„ „ 16 4	*0.29572	472.19	28.4	5.5627	28.4	(6 54 3.7	15 43 32.5	28.1)	Nakamura	Ōmori
„ „ 17 40	*0.29599	473.34	24.5	5.5532	24.5	(6 59 9.4	15 49 25.0	23.4)	Ōmori	Nakamura
„ „ 20 14	0.29607	473.99	22.2	5.5484	22.7	6 57 39.4	15 49 55.6	21.8	„	„
Mean	0.29591									

H = 0.29591
Reduction to 1895.0 = 1328
„ „ sea lavel = 897
H = 0.29613

15. KURUMA.

DECLINATIONS (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 2nd 2h 13m	4 43′ 46″	Midzusima	Nakamura
„ „ 3 1	„ 43 17	„	„
„ „ 4 27	„ 44 38	Nakamura	„
Mean	4 43′ 54″		

δ = 4 43′.90
Reduction to 1895.0 = 2.05
„ „ sea level = −0.05
δ = 4 45.9

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 1st 21h 34.5m	1	50 14′.6	Kimura	Ōmori
„ 2nd 4 0.5	1	„ 19.1	Nakamura	Nakamura
Mean		50 16′.8		

θ = 50° 16′.8
Reduction to 1895.0 = −1.28
„ „ sea level = −0.04
θ = 50° 15′.5

HORIZONTAL INTENSITY (H)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 2nd 1^h 59^m	0.29784	475.43	20.0C	5.5364	19.8C	6 55′33″.1	15 43′28″.8	20.2C	Nakamura	Midzusima
,, ,, 2 46	0.29704	475.27	20.3	5.5318	20.3	6 55 43.1	15 42 42.5	20.3	Midzusima	Nakamura
Mean	0.29744									

$H =$ 0.29744
Reduction to 1895.0 = 1349
,, ,, sea level = 780
$H =$ 0.29765

16 ITOIGAWA.

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	8th	7^h	16^m	5	4′	54″	Iwaoka	Turuta
,,	,,	7	57	,,	4	58	Turuta	Iwaoka
,,	,,	9	36	,,	4	58	Iwaoka	,,
,,	,,	10	0	,,	4	51	,,	,,
,,	,,	10	58	,,	6	27	,,	Turuta
,,	,,	11	9	,,	7	22	,,	,,
,,	,,	12	7	,,	9	3	,,	,,
,,	,,	12	49	,,	8	27	Turuta	Iwaoka
,,	,,	12	55	,,	8	46	,,	,,
,,	,,	13	8	,,	9	59	,,	,,
,,	,,	14	58	,,	8	40	Iwaoka	Turuta
,,	,,	15	7	,,	7	29	,,	,,
,,	,,	16	51	,,	5	50	,,	,,
,,	,,	17	1	,,	6	51	,,	,,
,,	,,	18	19	,,	6	31	,,	Iwaoka
,,	,,	18	40	,,	5	15	,,	,,
,,	,,	19	50	,,	4	51	,,	Turuta
,,	,,	20	1	,,	3	35	,,	,,
,,	,,	20	13	,,	3	45	,,	,,
,,	,,	20	31	,,	5	56	Turuta	Iwaoka
,,	,,	20	51	,,	5	47	,,	,,
,,	,,	21	4	,,	5	50	Iwaoka	Turuta
,,	,,	22	35	,,	5	57	Turuta	,,
,,	9th	0	48	,,	5	31	Iwaoka	Iwaoka
,,	,,	1	5	,,	5	35	,,	,,
,,	,,	6	31	,,	4	41	,,	,,
,,	,,	6	45	,,	4	33	,,	,,
,,	,,	7	0	,,	4	17	,,	,,
,,	,,	7	36	,,	4	35	,,	Turata
				5	6′	28″		

δ = 5° 6′.47
Reduction to 1895.0 = 1.91
,, ,, sea level = 0.00
δ = 5 8′.4

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ		Observer	Recorder
Aug. 2nd 21^h 39.0^m	1	51	8.4	Ōmori	Kimura, Nakamura
,, 3rd 10 16.0	1		6.3	,,	,,
Mean		51	7.4		

$\theta = 51°$ 7′.4
Reduction to 1895.0 = −1.57
,, ,, sea level = 0.00
$\theta = 51°$ 5′.8

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 8th 11h 40m		50° 59′.5	Turuta	Turuta ,,
,, ,, 16 27		,, 58.0	,,	Iwaoka
,, 9th 0 1		,, 57.2	Iwaoka	,,
Mean		50 58′.2		

θ = 50 58′.2
Reduction to 1895.0 = −1.37
,, ,, sea level = 0.00
θ = 50 56′.8

HORIZONTAL INTENSITY (H)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 3th 9h 41m	0.29183	472.90	30.3C	s 5.5936	29.4C	7 1′ 1″.2	15 55′48″.1	31.3C	Ōmori	Nakamura

H=0.29183
Reductions to 1895.0 = 1342
,, ,, sea lavel = 000
H=0.29196

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Oct. 8th 9h 10m	0.29277	452.62	21.4C	s 5.7715	20.6C	6 39′33″.0	15 12′40″.0	22.2	Iwaoka Turuta	Turuta Iwaoka
,, ,, 14 33	0.29300	451.80	23.9	5.7777	24.5	6 38 48.0	15 10 48.0	23.3	,, Iwaoka	,, Turuta
,, ,, 17 50	0.29278	453.39	18.7	5.7704	19.8	6 40 51.0	15 15 39.0	17.6	,, Turuta	,, Iwaoka
Mean	0.29285									

H=0.29285
Reductions to 1895.0 = 1171
,, ,, sea level = 000
H=0.29297

17. TAKATA.

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 5th 6h 57m	5° 9′ 40″	Ōmori	Nakamura
,, ,, 4 33	,, 8 25	,,	Ōmori
,, ,, 5 6	,, 7 28	,,	Nakamura
,, ,, 6 35	,, 3 33	Nakamura	Ōmori
,, ,, 7 0	,, 4 6	Ōmori	,,
,, ,, 7 57	,, 3 42	Midzusima	Midzusima
,, ,, 8 23	,, 3 50	,,	,,
,, ,, 8 46	,, 3 53	,,	,,
,, ,, 9 12	,, 4 2	,,	,,
,, ,, 9 39	,, 4 30	,,	,,
,, ,, 10 9	,, 6 15	,,	,,
,, ,, 10 38	,, 7 24	,,	,,
,, ,, 11 54	,, 10 33	,,	,,
,, ,, 12 56	,, 13 54	,,	,,
,, ,, 13 21	,, 15 13	,,	,,
,, ,, 13 50	,, 16 8	,,	,,
,, ,, 14 21	,, 16 13	,,	,,
,, ,, 14 50	,, 15 42	,,	,,
	To be continued.		

Continued

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	5th	15h	20m	5	14′	22″	Ōmori	Nakamura
,,	,,	16	25	,,	11	38	Nakamura	Ōmori
,,	,,	17	5	,,	10	30	Ōmori	Nakamura
,,	,,	17	34	,,	9	57	Nakamura	Ōmori
,,	,,	18	17	,,	9	33	Ōmori	Nakamura
,,	,,	18	50	,,	10	5	Nakamura	Ōmori
,,	,,	19	53	,,	10	11	,,	Nakamura
,,	,,	20	26	,,	10	6	,,	,,
,,	,,	20	52	,,	10	6	,,	,,
,,	,,	21	18	,,	10	30	,,	Midzusima
,,	,,	22	20	,,	10	9	Midzusima	,,
,,	,,	23	5	,,	10	24	,,	,,
,,	6th	0	3	,,	10	31	,,	,,
,,	,,	0	56	,,	9	47	,,	,,
,,	,,	1	51	,,	9	25	,,	,,
,,	,,	2	36	,,	9	30	,,	,,
,,	,,	3	45	,,	9	15	,,	,,
,,	,,	4	46	,,	8	51	,,	,,
,,	,,	5	24	,,	7	38	,,	,,
,,	,,	6	2	,,	7	33	,,	,,
,,	,,	6	20	,,	7	3	,,	,,
,,	,,	8	26	,,	3	42	Ōmori	Nakamura
,,	,,	9	21	,,	5	55	Nakamura	Ōmori
,,	,,	9	53	,,	6	21	Ōmori	Nakamura
,,	,,	10	43	,,	8	50	,,	,,
,,	,,	11	40	,,	11	24	Nakamura	Ōmori
,,	,,	12	17	,,	11	47	Ōmori	Nakamura
,,	,,	12	59	,,	12	55	Nakamura	Ōmori
,,	,,	13	31	,,	13	4	Ōmori	Nakamura
,,	,,	14	19	,,	13	56	,,	,,
,,	,,	14	47	,,	14	45	Midzusima	Midzusima
,,	,,	15	7	,,	13	3	,,	,,
,,	,,	15	33	,,	11	58	,,	,,
,,	,,	16	16	,,	12	26	,,	,,
,,	,,	16	42	,,	12	25	,,	,,
,,	,,	17	30	,,	12	13	,,	,,
,,	,,	18	10	,,	12	15	,,	Ōmori
,,	,,	18	48	,,	12	15	Nakamura	Midzusima
,,	,,	19	41	,,	13	18	Midzusima	Nakamura
Mean				5	9′	33″		

$\delta = 5 \quad 9\text{'}.55$

Reduction to 1895.0 = 2.12

,, ,, sea level = 0.00

$\delta = 5 \quad 11.7$

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	Dip		Observer	Recorder
Aug.	4th	21h	32.4m	1	50°	55.8	Midzusima	Ōmori
,,	5th	12	35.6	1	,,	58.5	,,	Midzusima
,,	,,	16	49.2	1	,,	55.5	Nakamura	Ōmori
,,	,,	19	18.9	1	,,	52.6	Ōmori	Nakamura
,,	6th	0	29.8	1	,,	58.0	Midzusima	Midzusima
,,	,,	10	15.2	1	,,	54.4	Ōmori	Nakamura
,,	,,	12	39.4	1	,,	52.6	Nakamura	Ōmori
,,	,,	16	0.5	1	,,	57.5	Midzusima	Midzusima
,,	,,	18	28.8	1	,,	56.3	Nakamura	,,
,,	,,	20	10.8	1	,,	59.1	Midzusima	Ōmori
Mean					50	56.0		

$\theta = 50 \quad 56\text{'}.0$

Reduction to 1895.0 = −1.27

,, ,, sea level = 0.00

$\theta = 50° \quad 54\text{'}.7$

HORIZONTAL INTENSITY (H)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug	5th	6^h	12^m	0.29392	471.52	27.1C	5.5828	26.8C	6 57′35″.6	15 48′39″.4	27.5C	Ōmori	Nakamura
,,	,,	16	11	0.29363	470.57	32.3	5.5926	32.1	6 56 58.8	15 47 0.7	32.2	,,	,,
,,	,,	18	5	0.29348	471.18	30.5	5.5900	30.6	6 57 33.5	15 47 54.4	30.3	Nakamura	Ōmori
,,	,,	22	4	0.29375	472.43	27.0	5.5806	27.4	6 58 58.1	15 51 56.9	26.5	Midzusima	Nakamura
,,	6th	9	9	0.29339	470.09	33.4	5.5986	34.0	6 57 6.0	15 47 21.2	32.9	Ōmori	,,
,,	,,	10	27	0.29328	469.42	34.8	5.6040	35.6	6 56 51.0	15 47 1.9	34.0	Nakamura	Ōmori
,,	,,	14	6	0.29303	470.02	34.9	5.6018	35.3	6 56 55.0	15 46 5.6	34.5	Ōmori	Nakamura
Mean				0.29350									

$H=$ 0.29350
Reduction to 1895.0 = 1248
,, ,, sea level = 000
$H=$ 0.29362

18. SEKIYAMA.

DECLINATION (δ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	7th	8^h	37^m	5	1′	42″	Midzusima	Kimura
,,	,,	9	19	,,	0	33	,,	,,
,,	,,	11	30	,,	58	56	Nakamura	Midzusima
,,	8th	0	40	4	59	32	Ōmori	Nakamura
,,	,,	1	29	,,	58	20	Nakamura	Ōmori
,,	,,	2	20	,,	57	4	Ōmori	Nakamura
,,	,,	3	2	,,	55	35	Nakamura	Ōmori
,,	,,	4	48	,,	56	55	,,	Nakamura
Mean				4	58′	35″		

$\delta=4$ 58′.58
Reduction to 1895.0 = 2.03
,, ,, sea level = −0.05
$\delta=5$ 0′.6

DIP (θ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	7th	16^h	39.4^m	1	50°	52′.4	Nakamura	Nakamura
,,	,,	23	7.0	1	,,	55.6	Ōmori	,,
,,	8th	1	57.3	1	,,	54.4	Nakamura	Ōmori
Mean					50°	54′.1		

$\theta=50$ 54′.1
Reduction to 1895.0 = −1.12
,, ,, sea level = 0.03
$\theta=50°$ 53′.0

HORIZONTAL INTENSITY (H)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	7th	18^h	0^m	0.29309	470.32	28.8C	5.5986	28.7C	6 58′ 7″.8	15 50′31″.2	28.8C	Nakamura	Ōmori
,,	,,	20	17	0.29318	471.55	26.0	5.5914	26.6	6 58 49.2	15 51 16.3	25.5	Midzusima	Kimura
,,	8th	0	23	0.29325	471.97	23.9	5.5874	24.1	6 59 8.8	15 52 14.3	23.8	Ōmori	Nakamura
,,	,,	1	13	0.29330	471.41	25.5	5.5900	25.5	6 58 35.0	15 51 1.4	25.6	Nakamura	Ōmori
Mean				0.29320									

$H=$ 0.29320
Reduction to 1895.0 = 1218
,, ,, sea level = 734
$H=$ 0.29340

19. NAGANO.

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	8th	16h	59m	4	56′	3″	Midzusima	Ōmori
,,	,,	18	8	,,	54	58	,,	,,
,,	,,	18	36	,,	55	12	Kimura	,,
,,	,,	20	21	,,	55	41	Ōmori	Kimura
,,	,,	21	8	,,	55	17	Nakamura	Nakamura
,,	,,	21	15	,,	55	25	,,	,,
,,	,,	22	18	,,	55	49	,,	,,
,,	,,	23	54	,,	56	18	Midzusima	Midzusima
,,	9th	0	49	,,	56	19	,,	,,
,,	,,	1	57	,,	55	57	,,	,,
,,	,,	2	54	,,	55	32	,,	,,
,,	,,	4	10	,,	55	6	,,	,,
,,	,,	5	34	,,	54	37	,,	,,
,,	,,	6	30	,,	52	12	,,	,,
,,	,,	7	9	,,	51	44	,,	,,
,,	,,	7	59	,,	50	45	,,	,,
,,	,,	8	44	,,	50	7	Ōmori	Kimura
,,	,,	10	4	,,	52	37	Kimura	Ōmori
,,	,,	10	38	,,	54	2	Ōmori	Kimura
,,	,,	11	39	,,	56	50	,,	,,
,,	,,	12	56	5	0	12	Kimura	Ōmori
,,	,,	13	22	,,	0	58	Nakamura	Nakamura
,,	,,	13	56	,,	0	57	,,	,,
,,	,,	14	28	,,	0	32	,,	,,
,,	,,	15	18	4	58	48	Ōmori	Kimura
,,	,,	15	51	,,	57	59	,,	,,
,,	,,	16	54	,,	56	31	Kimura	Ōmori
,,	,,	17	24	,,	56	7	Ōmori	Nakamura
,,	,,	18	15	,,	55	56	Nakamura	Ōmori
,,	,,	19	43	,,	55	55	,,	,,
,,	,,	20	41	,,	56	8	Midzusima	Kimura
,,	,,	21	31	,,	55	38	,,	,,
,,	,,	22	32	,,	56	8	,,	,,
,,	10th	23	43	,,	55	38	Nakamura	Ōmori
,,	,,	5	45	,,	54	48	Ōmori	Nakamura
,,	,,	6	45	,,	52	53	Nakamura	Ōmori
,,	,,	7	10	,,	52	35	,,	,,
,,	,,	8	4	,,	51	28	Ōmori	Nakamura
,,	,,	9	11	,,	53	2	Midzusima	Midzusima
,,	,,	10	15	,,	54	57	,,	Kimura
,,	,,	11	6	,,	56	47	Kimura	,,
,,	,,	12	31	,,	59	53	,,	,,
,,	,,	13	37	5	2	22	Midzusima	Midzusima
,,	,,	14	6	,,	1	55	Kimura	Kimura
,,	,,	15	8	,,	0	32	Ōmori	Ōmori
,,	,,	16	13	4	58	22	,,	,,
Mean				4	55′	56″		

	δ = 4°	55′.93
Reduction to	1895.0 =	1.93
,, ,,	sea level =	−0.03
	δ = 4°	57′.83

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 9th 15h 12.7m	1	50 33′.7	Nakamura	Nakamura
,, ,, 17 54.7	1	,, 35.4	,,	,,
,, ,, 21 7.4	1	,, 31.0	Midzusima	Kimura
,, 10th 13 11.5	1	,, 34.4	,,	,,
Mean		50 34′.4		

θ = 50 34′.4
Reduction to 1895.0 = −0.98
,, ,, sea level = −0.02
θ = 50 33′.4

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 8th 20h 1m	0.29298	471.31	27.0C	s 5.5939	27.0C	6 58′25″.6	15 50′32″.5	27.0C	Kimura	Ōmori
,, ,, 22 26	0.29313	471.55	27.0	5.5911	27.2	6 58 38.8	15 50 14.4	27.0	Nakamura	Midzusima
,, 9th 9 31	0.29287	470.35	31.7	5.6004	31.7	6 57 28.8	15 47 31.9	31.8	Kimura	Ōmori
,, ,, 11 19	0.29360	468.32	34.7	5.6068	35.2	6 55 38.8	15 44 45.7	34.2	Ōmori	Kimura
,, ,, 12 32	0.29302	468.76	35.1	5.6100	36.0	6 56 18.1	15 45 13.7	34.3	Kimura	Ōmori
,, ,, 16 31	0.29339	470.33	29.9	5.5969	30.4	6 57 21.2	15 47 52.5	29.4	Nakamura	,,
,, ,, 18 50	*0.29312	471.11	26.6	5.5936	26.6	....	....	..	Ōmori	Nakamura
,, ,, 20 25	0.29439	470.77	26.2	5.5900	26.3	6 57 55.0	15 50 16.9	26.1	,,	,,
,, ,, 23 23	0.29307	471.98	24.5	5.5892	24.7	6 59 5.0	15 51 32.5	24.2	Nakamura	Ōmori
,, 10th 6 31	0.29308	471.54	23.8	5.5918	24.0	6 59 0.6	15 51 50.0	23.5	Ōmori	Nakamura
,, ,, 7 41	0.29299	471.40	25.2	5.5936	25.5	6 58 49.1	15 51 16.2	25.0	Nakamura	Ōmori
,, ,, 8 43	0.29319	469.96	28.7	5.5992	28.4	6 57 16.9	15 48 4.4	29.0	Ōmori	Nakamura
,, ,, 10 43	0.29349	468.68	33.7	5.6060	34.2	6 55 55.6	15 45 0.6	33.2	Midzusima	Kimura
,, ,, 12 0	0.29315	469.05	34.7	5.6074	35.8	6 56 19.4	15 45 11.8	33.5	,,	,,
Mean	0.29325									

H = 0.29325
Reduction to 1895.0 = 1211
,, ,, sea level = 520
H = 0.29342

20. IYAMA.

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 11th 19h 20m	5 5′ 11″	Nakamura	Ōmori
,, ,, 20 32	,, 5 18	Ōmori	Nakamura
,, ,, 21 31	,, 5 30	Midzusima	Midzusima
,, 12th 0 26	,, 5 33	,,	Kimura
,, ,, 2 56	,, 5 32	,,	,,
,, ,, 4 58	,, 6 21	,,	,,
,, ,, 6 43	,, 1 33	Kimura	,,
,, ,, 7 38	,, 0 2	Nakamura	Ōmori
,, ,, 8 28	4 59 26	Ōmori	Nakamura
,, ,, 9 41	5 2 9	Nakamura	Ōmori
,, ,, 10 45	,, 4 53	Ōmori	Nakamura
,, ,, 11 27	,, 6 11	Nakamura	Ōmori
,, ,, 12 1	,, 7 20	Ōmori	Nakamura
,, ,, 12 48	,, 9 44	Nakamura	Ōmori
,, ,, 13 41	,, 10 7	Ōmori	Nakamura
,, ,, 14 28	,, 9 28	Nakamura	,,
,, ,, 15 5	,, 8 57	,,	,,
,, ,, 16 46	,, 5 57	Ōmori	,,
Mean	5 5′ 7″		

δ = 5 5′.7
Reduction to 1895.0 = 2.00
,, ,, sea level = −0.03
δ = 5 7′.1

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	Dip	Observer	Recorder
Aug. 11th 18h 42.3m	1	56 45.5	Ōmori	Nakamura
,, ,, 23 10.3	1	.. 44.3	Kimura	{ Kimura Ōmori
,, 12th 10 18.9	1	.. 43.2	Ōmori	Nakamura
,, ,, 11 10.9	1	.. 44.1	Nakamura	Ōmori
Mean		56° 44.3		

$\theta = 56$ 44.3
Reduction to 1895.0 = −1.11
,, ,, sea level = −0.02
$\theta = 56$ 43.2

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 11th 20 15m	*0.29334	471.29	25.1 C	s 5.5904	25.1 C	6 58′ 4″0	15 17′27″5	24.4 C	Ōmori	Nakamura
,, ,, 21 9	0.29359	471.67	24.3	5.5859	24.5	6 58 6.9	15 49 23.8	24.3	Nakamura	Ōmori
,, 12th 6 22	0.29348	472.08	21.9	5.5830	21.4	6 58 40.6	15 51 1.2	22.5	Kimura	Midzusima
,, ,, 8 11	0.29331	470.73	26.6	5.5951	27.2	6 57 49.4	15 48 50.6	26.0	Nakamura	Ōmori
,, ,, 9 22	0.29336	469.39	29.6	5.6038	30.7	6 56 53.1	15 47 3.1	28.5	Ōmori	Nakamura
,, ,, 12 32	0.29356	468.44	35.4	5.6060	35.5	6 54 49.4	15 41 26.3	35.3	Nakamura	Ōmori
,, ,, 13 23	0.29345	467.86	36.2	5.6100	36.1	6 54 24.4	15 40 33.1	36.4	Ōmori	Nakamura
,, ,, 15 46	0.29378	468.65	32.4	5.6022	32.6	6 54 59.4	15 42 16.2	32.4	..	..
Mean	0.29348									

H = 0.29348
Reduction to 1895.0 = 4182
,, ,, sea level = 406
H = 0.29364

21. TŌKAMATI.

Bleaching ground (布晒シ場)

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	13th	20h	35m	4	55	59″	Kimura	Ōmori
,,	14th	0	4	,,	59	53	Midzusima	Nakamura
,,	,,	1	51	5	0	10	,,	,,
,,	,,	2	59	,,	1	59	,,	Midzusima
,,	,,	5	30	4	59	9	Nakamura	Nakamura
,,	,,	7	2	,,	56	40	,,	,,
,,	,,	8	0	,,	51	12	Midzusima	,,
,,	,,	8	53	,,	55	53	Nakamura	Ōmori
,,	,,	9	47	,,	56	27	Kimura	,,
,,	,,	10	50	5	0	45	Ōmori	Kimura
,,	,,	11	40	,,	3	4	,,	,,
,,	,,	11	52	,,	3	3	Kimura	Ōmori
,,	,,	12	41	,,	4	7	,,	,,
,,	,,	14	16	,,	4	43	,,	Kimura
,,	,,	15	19	,,	3	28	Midzusima	Midzusima
,,	,,	16	4	,,	2	24	,,	,,
,,	,,	16	42	,,	0	2	Kimura	Kimura
,,	,,	17	43	4	59	12	,,	,,
,,	,,	19	8	,,	59	28	Midzusima	Ōmori
,,	,,	19	42	,,	59	51	Ōmori	,,
,,	,,	20	52	,,	59	14	,,	Kimura
,,	,,	22	3	5	0	18	Kimura	Ōmori
,,	,,	22	24	,,	0	44	Ōmori	Kimura
,,	15th	0	18	,,	1	2	Midzusima	Ōmori
,,	,,	1	22	,,	0	26	Ōmori	Midzusima
,,	,,	2	16	4	59	58	Midzusima	Ōmori
,,	,,	2	57	,,	59	51	Ōmori	Midzusima
,,	,,	4	28	,,	58	59	,,	Ōmori
,,	,,	4	57	,,	59	18	,,	,,
Mean				5	0′	7″		

$\delta = 5^\circ\ 0'.12$

Reduction to 1895.0 = 2.02

,, ,, sea level = −0.01

$\delta = 5\ \ 2'.1$

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	13th	20h	39.3m	1	50	57′.5	Ōmori	Ōmori
,,	,,	22	28.4	—	,,	58.9	Nakamura	Nakamura
,,	14th	6	7.0	—	,,	56.8	,,	,,
,,	,,	7	33.8	1	,,	55.9	Midzusima	,,
,,	,,	11	52.3		,,	56.5	,,	Midzusima
,,	,,	20	19.8	1	,,	54.3	Ōmori	Ōmori
,,	,,	23	20.8	1	,,	53.2	,,	Midzusima
,,	15th	1	51.2	1	,,	56.5	Midzusima	Ōmori
Mean					50°	56′.2		

$\theta = 50^\circ\ 56'.2$

Reduction to 1895.0 = −0.97

,, ,, sea level = −0.01

$\theta = 50^\circ\ 55'.2$

HORIZONTAL INTENSITY (*H*)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t	Observer	Recorder
Aug.	14th	1h	38m	0.29355	471.54	22°.9C	5.5860 s	22°.6C	6°58′ 6″.2	15°49′36″.9	23°.2C	Nakamura	Midzusima
,,	,,	7	45	0.29426	470.32	27.7	5.5904	27.8	6 56 30.6	15 46 6.2	27.6	Midzusima	Nakamura
,,	,,	9	33	0.29326	468.14	32.9	5.6113	33.5	6 55 25.6	15 43 14.4	32.3	Kimura	Ōmori
,,	,,	10	36	0.29308	468.14	34.7	5.6132	35.3	6 55 12.5	15 42 3.7	34.2	Ōmori	Kimura
,,	,,	12	27	0.29311	467.20	36.8	5.6189	37.5	6 54 9.4	15 39 31.9	36.1	Kimura	Ōmori
,,	,,	13	28	0.29362	467.27	36.3	5.6126	36.6	6 53 47.5	15 39 15.0	36.1	Ōmori	Kimura
,,	,,	18	19	0.29348	468.19	30.7	5.6040	31.1	6 55 28.7	15 42 54.4	30.5	Midzusima	,,
,,	,,	21	45	0.29388	470.92	24.0	5.5887	24.7	6 57 18.1	15 47 38.8	23.4	Kimura	Ōmori
,,	15th	1	3	0.29364	471.38	22.5	5.5871	22.7	6 57 46.3	15 48 31.9	22.3	Midzusim	,,
,,	,,	3	39	0.29369	471.42	22.3	5.5860	22.3	6 57 35.0	15 47 55.6	22.3	Ōmori	Midzusima
Mean				0.29356									

$H =$ 0.29356
Reduction to 1895.0 = 1035
,, ,, sea level = 210
$H =$ 0.29368

22. NAGAOKA.

Sakagami School. (坂上學校)

DECLINATION (δ)

Observations of the East Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	26th	21h	27m	5°	12′	27″	Nakamura	Ōmori
,,	,,	21	42	,,	12	32	,,	,,
,,	,,	23	19	,,	13	3	Ōmori	Nakamura
,,	27th	0	26	,,	12	21	Nakamura	Ōmori
,,	,,	6	5	,,	14	37	,,	Nakamura
,,	,,	6	29	,,	13	21	,,	Ōmori
,,	,,	7	25	,,	9	32	Ōmori	Nakamura
,,	,,	7	57	,,	7	55	Nakamura	Ōmori
,,	,,	8	39	,,	6	22	Kimura	Kimura
,,	,,	9	22	,,	6	42	,,	,,
,,	,,	10	6	,,	7	41	,,	,,
,,	,,	11	10	,,	11	14	,,	,,
,,	,,	11	11	,,	10	50	,,	,,
,,	,,	12	12	,,	13	35	Nakamura	Nakamura
,,	,,	12	37	,,	13	48	,,	,,
,,	,,	13	3	,,	14	14	,,	,,
,,	,,	13	20	,,	14	23	,,	,,
,,	,,	13	42	,,	14	52	,,	,,
Mean				5°	12′	17″		

δ = 5° 12.′28
Reduction to 1895.0 = 2.06
,, ,, sea level = 0.00
δ = 5° 14.′3

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 15th 20h 57.5m	1	51 38′.0	Midzusima	Ōmori
„ 16th 3 13.8	1	„ 34.6	Nakamura	Nakamura
„ „ 7 3.2	1	„ 40.1	Kimura	Kimura
„ „ 9 18.2	1	„ 43.6	Ōmori	Ōmori
„ 18th 0 28.2	1	„ 38.2	„	„
„ „ 6 7.7	1	„ 34.8	„	„
„ „ 7 13.8	1	„ 36.7	„	„
„ „ 8 50.3	—	„ 37.6	Midzusima	Nakamura
„ „ 9 33.6	1	„ 37.6	Nakamura	„
Mean		51° 37′.9		

$\theta = 51°\ 37'.9$
Reduction to 1895.0 = −0.96
„ „ sea level = 0.00
$\theta = 51°\ 36'.9$

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	δ	Observer	Recorder
Aug. 27th 9h 6.1m	1	51° 46′.7	Kimura	Kimura
„ „ 10 41.7	1	„ 38.9	„	„
Mean		51° 42′.8		

$\theta = 51°\ 42'.8$
Reduction to 1895.0 = −0.94
„ „ sea level = 0.00
$\theta = 51°\ 41'.9$

HORIZONTAL INTENSITY (H)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections. φ_1	Mean Deflections. φ_2	Temp. t_D	Observer	Recorder
Aug 16th 8h 12m	0.28995	469.83	28°.5C	s 5.6306	27°.9C	7° 0′ 49″.6	15° 56′ 40″.0	29°.1C	Nakamura	Kimura
„ „ 22 16	0.28994	470.48	26.0	5.6287	26.4	7 1 49.1	15 57 11.9	25.7	Midzusima	Ōmori
„ 17th 20 59	0.29029	469.62	27.0	5.6296	27.0	7 1 21.4	15 57 45.6	26.9	Nakamura	„
„ „ 21 49	0.28950	470.24	27.0	5.6338	27.1	7 2 16.9	15 58 26.9	26.9	Ōmori	Nakamura
„ 18th 8 16	0.29001	469.41	27.3	5.6349	27.5	7 1 5.5	15 56 10.6	27.2	Midzusima	„
Mean	0.28994									

$H = 0.28994$
Reduction to 1895.0 = 938
„ „ sea level = 040
$H = 0.29004$

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflection φ_1	Mean Deflection φ_2	Temp. t_D	Observer	Recorder
Aug. 26th 23h 59m	0.29037	468.56	24°.3C	s 5.6345	24°.0C	7° 0′ 6″.0	15° 54′ 3″.8	24°.7C	Ōmori	Nakamura
„ 27th 7 14	0.28988	469.06	23.7	5.6367	23.6	7 0 58.8	15 55 55.0	23.8	„	„
Mean	0.29012									

$H = 0.29012$
Reduction to 1895.0 = 931
„ „ sea level = 40
$H = 0.29022$

23. KASIWAZAKI.

Kasiwazaki Street (柏崎町)

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug 19— 2h 24.4m	1	51° 58'.2	Kimura	Kimura
,, ,, 7 1.8	1	52 2.3	Nakamura	,,
,, ,, 8 6.0	1	51 58.5	Ōmori	Midzusima
,, ,, 17 54.4	1	52 0.6	Nakamura	Kimura
,, ,, 18 46.6	1	51 53.7	Kimura	,,
,, ,, 22 34.6	1	,, 55.6	Ōmori	Nakamura
,, 20th 0 33.7	1	,, 56.6	Nakamura	Ōmori
,, ,, 3 12.2	1	,, 53.3	Ōmori	,,
,, ,, 7 32.2	1	52 0.0	Nakamura	,,
,, ,, 8 45.7	1	51 51.0	Midzusima	Kimura
,, ,, 9 33.7	1	,, 52.5	,,	,,
,, ,, 15 8.8	1	,, 53.8	Ōmori	Ōmori
,, ,, 20 31.7	1	52 0.9	Kimura	Nakamura
Mean		51° 56'.7		

θ = 51° 56'.7
Reduction to 1895.0 = −1.37
,, ,, sea level = 0.00
θ = 51° 55'.3

HORIZONTAL INTENSITY (H).

(* *Value deduced from Vibration only by Assuming Value of M.*)

Observations of the East Party, 1893.

Date and Hour (Hour Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 19th 0h 31m	0.28780	469.68	26.7C	s 5.6546	27.2C	7° 4' 51".9	16° 5' 8".1	26.2C	Kimura	Nakamura
,, ,, 5 57	0.28771	469.18	25.1	5.6581	25.5	7 4 58.2	16 6 5.6	24.8	Nakamura	Kimura
,, ,, 9 37	0.28844	468.25	26.6	5.6576	27.4	7 3 52.5	16 4 40.7	25.8	Midzusima	Ōmori
,, ,, 16 12	0.28804	470.40	23.2	5.6466	23.3	7 5 3.8	16 5 32.5	23.3	Kimura	Nakamura
,, ,, 16 50	0.28888	469.46	22.9	5.6441	22.9	7 4 7.5	16 5 11.9	22.9	Nakamura	Kimura
,, ,, 23 44	0.28777	470.85	21.9	5.6474	22.3	7 5 41.2	16 6 28.8	21.5	Ōmori	Nakamura
,, 20th 6 39	0.28834	470.42	21.2	5.6438	21.4	7 4 57.5	16 5 43.8	21.1	,,	,,
,, ,, 23 53	*0.28874	469.37	25.2	5.6431	25.2	(6 57 56.9	16 5 23.1	24.7)	Kimura	Ōmori
,, 21st 6 31	*0.28885	469.93	23.4	5.6417	23.4	(7 2 52.5	15 57 4.3	23.1)	Ōmori	Kimura
,, ,, 7 20	0.28939	470.03	23.3	5.6487	23.4	7 3 42.5	16 3 56.3	23.3	Kimura	Ōmori
Mean	0.28840									

H = 0.28840
Reduction to 1895.0 = 1137
,, ,, sea level = 000
H = 0.28851

24. TERADOMARI.

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	Dip.	Observer	Recorder
Aug. 22nd 10h 4.2m	1	51° 34'.0	Nakamura	Kimura
,, ,, 11 17.2	1	,, 36.0	,,	Ōmori
,, ,, 11 56.3	—	,, 40.0	Ōmori	Nakamura
,, ,, 12 33.9	—	,, 39.4	,,	,,
,, ,, 13 7.1	—	,, 32.9	Kimura	Ōmori
Mean		51° 36'.5		

θ = 51° 36'.5
Reduction to 1895.0 = −1.36
,, ,, sea level = 0.00
θ = 51° 35'.1

HORIZONTAL INTENSITY (H)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_u	Observer	Recorder
Aug. 22th 8^h 4^m	0.29162	470.56	22.1C	$\overset{s}{5}$.6113	22.3C	7 0′14″.4	15 54′43″.2	21.9C	Kimura	Omori
" " 8 53	0.29128	470.31	23.8	5.6163	24.0	7 0 24.4	15 54 55.7	23.5	Omori	Kimura
Mean	0.29145									

$H=$ 0.29145
Reduction to 1895.0 = 1034
" " sea level = 000
$H=$ 0.29155

25. NIIGATA.

Play ground of Ordinary Normal School (尋常師範學校運動場)

DECLINATION (δ)

Observations of the East Party, 1893.

Dete and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	23th	19^h	5^m	5	41′	57″	Nakamura	Nakamura
"	"	19	23	"	41	52	"	"
"	"	19	50	"	41	33	"	"
"	"	20	34	"	41	37	"	"
"	"	21	1	"	42	6	Kimura	Ōmori
"	"	22	30	"	42	10	"	"
"	"	23	59	"	42	2	Ōmori	Kimura
"	24th	3	46	"	43	6	"	"
"	"	4	50	"	41	30	Kimura	Ōmori
"	"	5	58	"	37	16	Ōmori	Kimura
"	"	6	59	"	35	32	"	"
"	"	8	51	"	37	5	"	"
"	"	8	58	"	39	9	Nakamura	Nakamura
"	"	9	15	"	38	21	"	"
"	"	10	14	"	38	29	"	"
"	"	10	37	"	39	30	"	"
"	"	11	11	"	39	17	"	Kimura
"	"	11	38	"	40	41	Kimura	Nakamura
"	"	12	34	"	39	58	Nakamura	Kimura
"	"	13	19	"	38	55	Kimura	Nakamura
"	"	13	52	"	39	31	"	Kimura
"	"	14	24	"	40	41	Ōmori	Ōmori
"	"	16	3	"	43	8	"	Nakamura
"	"	16	56	"	40	23	Nakamura	Ōmori
"	"	17	49	"	39	57	Ōmori	Nakamura
"	"	19	3	"	40	33	"	Ōmori
"	"	19	55	"	41	10	"	"
"	"	20	8	"	40	11	Kimura	Nakamura
"	25th	6	11	"	40	8	"	"
"	"	7	7	"	35	48	Nakamura	Kimura
"	"	7	58	"	33	30	Kimura	Nakamura
"	"	8	36	"	34	55	Nakamura	Kimura
"	"	9	6	"	34	51	Kimura	Nakamura
"	"	10	10	"	35	6	Ōmori	Ōmori
"	"	13	39	"	38	6	"	"
"	"	14	19	"	37	53	"	"
"	"	14	58	"	37	10	"	"
"	"	15	52	"	35	32	Kimura	Nakamura
"	"	16	39	"	34	44	"	Kimura
"	"	18	2	"	36	47	Nakamura	"
"	"	18	33	"	37	46	"	"
Mean				5°	40′	29″		

$\delta=5$ 40!48
Reduction to 1895.0 = 2.27
" " sea level = 0.00
$\delta=5°$ 42!8

Observations of the South Party, 1895.

Date and Hour. (Mean Local Time.)	δ	Observer	Recorder
Aug. 16th 22h 26.9m	5° 16′ 43″	Nakamura	Sutō
,, ,, 22 59.4	,, 17 13	Sutō	,,
,, 17th 3 4.7	,, 16 34	,,	,,
,, ,, 3 48.8	,, 16 25	,,	,,
,, ,, 5 7.1	,, 16 13	,,	,,
,, ,, 5 56.7	,, 14 55	,,	,,
,, ,, 6 59.7	,, 13 21	,,	,,
,, ,, 7 58.0	,, 13 11	,,	,,
,, ,, 8 32.1	,, 13 46	Imamura	Imamura
,, ,, 9 55.3	,, 16 59	,,	Nakamura
,, ,, 10 52.9	,, 19 6	Nakamura	,,
,, ,, 11 39.1	,, 20 13	Imamura	Imamura
,, ,, 12 22.1	,, 21 3	,,	Nakamura
,, ,, 13 27.3	,, 21 0	Nakamura	,,
,, ,, 14 24.4	,, 20 11	Imamura	Sutō
,, ,, 15 19.2	,, 19 27	,,	Imamura
,, ,, 16 19.7	,, 18 38	Sutō	Sutō
,, ,, 17 29.6	,, 17 31	,,	,,
,, ,, 18 17.3	,, 17 16	,,	Imamura
,, ,, 19 17.8	,, 17 20	Nakamura	Sutō
Mean	5° 17′ 13″		

$\delta = 5°\ 17'.22$

Reduction to 1895.0 = -1.04

,, ,, sea level = 0.00

$\delta = 5°\ 16'.2$

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 23th 18h 19.9m	1	51° 51′.1	Nakamura	Nakamura
,, ,, 20 14.4	1	,, 54.7	,,	,,
,, 24th	1	,, 51.3	Kimura	Ōmori
,, ,, 20 35.0	1	,, 52.8	Ōmori	Nakamura
,, ,, 18 32.4	1	,, 53.5	,,	Ōmori
,, 25th 16 20.2	1	,, 57.9	Kimura	Nakamura
,, ,, 18 19.7	1	,, 48.7	,,	Kimura
Mean		51° 52′.9		

$\theta = 51°\ 52'.9$

Reduction to 1895.0 = -1.36

,, ,, sea level = 0.00

$\theta = 51°\ 51'.5$

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 17th 7h 25m	1	51° 59′.4	Sutō	Sutō
,, ,, 11 28	1	,, 58.6	Imamura	Imamura
,, ,, 13 2	1	,, 55.8	Nakamura	Nakamura
,, ,, 17 40	—	,, 58.9	Imamura	,,
,, ,, 20 44	1	,, 54.1	,,	Sutō
Mean		51° 57′.0		

$\theta = 51°\ 57'.0$

Reduction to 1895.0 = 0.62

,, ,, sea level = 0.00

$\theta = 51°\ 57'.6$

HORIZONTAL INTENSITY (*H*)
(* Value deduced from Vibration only by assuming Value of *M*)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibⁿ.	Temp. t_v	Mean Deflections		Temp. t_D	Observer	Recorder
						φ_1	φ_2			
Aug. 23rd 22h 15m	0.28831	468.39	26.5C	s 5.6561	26.4C	7° 2′40″.7	15 59′56″.5	26.6C	Kimura	Ōmori
,, ,, 23 37	0.28853	468.53	26.2	5.6543	26.7	7 2 40.6	15 59 58.5	25.8	Ōmori	Kimura
,, 24th 6 41	0.28841	468.46	26.1	5.6552	26.3	7 2 47.9	16 0 24.6	25.9	Kimura	Ōmori
,, ,, 12 21	0.28854	466.81	30.4	5.6652	31.0	7 1 23.9	15 57 33.3	29.8	,,	Nakamura
,, ,, 13 7	0.28836	467.15	31.1	5.6654	32.0	7 1 27.1	15 56 48.7	30.2	Nakamura	Kimura
,, ,, 16 42	0.28859	469.49	23.6	5.6472	23.7	7 3 13.1	16 0 50.7	23.5	,,	Ōmori
,, ,, 17 33	0.28853	468.75	23.3	5.6518	23.2	7 3 3.8	16 1 16.9	23.3	Ōmori	Nakamura
,, 25th 6 54	0.28824	469.84	22.1	5.6476	21.9	7 3 51.0	16 2 12.5	22.4	Nakamura	Kimura
,, ,, 7 43	0.28848	468.84	22.8	5.6512	22.5	7 3 10.4	16 1 35.6	23.1	Kimura	Nakamura
Mean	0.28844									

H = 0.28844
Reduction to 1895.0 = 950
,, ,, sea level = 000
H = 0.28854

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibⁿ.	Temp. t_v	Mean Deflections		Temp. t_D	Observer	Recorder
						φ_1	φ_2			
Aug. 17th 9h 38m	0.28927	429.92	32.9C	s 5.9586	32.4C	6°33′46″.9	14°35′54″.4	33.5C	Imamura	Nakamura
,, ,, 12 5	0.28946	429.56	32.1	5.9625	32.9	6 23 51.3	14 36 20.0	31.3	Nakamura	Iamamura
,, ,, 15 0	0.28993	429.33	31.1	6.9590	31.9	6 53 55.0	14 36 30.6	30.4	Sutō	,,
,, ,, 16 20	*0.28944	430.15	31.2	5.9565	31.2	..	..	..	Imamura	Nakamura
,, ,, 16 39	*0.28906	430.30	30.7	5.9593	30.7	..	..	..	Nakamura	Imamura
,, ,, 17 11	*0.28979	430.10	29.8	5.9539	29.8	..	..	..	,,	,,
,, ,, 21 9	0.28936	431.44	26.9	5.9479	26.8	6 25 23.1	14 30 41.9	26.9	.. ..	Sutō Imamura
Mean	0.28947									

H = 0.28947
Reduction to 1895.0 = −437
,, ,, sea level = 000
H = 0.28943

26. KAMO.

Seikaizinzya. (西海神社)

DECLINATION (δ)
Observations of the East Party, 1893

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 28th 8h 9m	5° 26′ 23″	Kimura	Kimura
,, ,, 8 57	,, 26 0	Nakamura	Nakamura
,, ,, 9 42	,, 25 30	,,	,,
,, ,, 10 12	,, 26 19	,,	,,
,, ,, 10 39	,, 27 6	,,	,,
,, ,, 11 5	,, 27 22	,,	,,
,, ,, 11 35	,, 27 29	,,	,,
,, ,, 12 5	,, 28 36	,,	,,
,, ,, 12 30	,, 28 30	,,	,,
,, ,, 13 23	,, 30 24	,,	Ōmori
,, ,, 14 11	,, 28 47	Ōmori	Nakamura
,, ,, 14 42	,, 30 31	,,	Ōmori
,, ,, 15 52	,, 30 12	,,	,,
,, ,, 16 37	,, 29 50	,,	,,
,, ,, 17 49	,, 29 42	,,	Nakamura
,, ,, 18 31	,, 29 5	Nakamura	Kimura
Mean	5° 28′ 18″		

δ = 5° 28′.30
Reduction to 1895.0 = 2.10
,, ,, sea level = −0.01
δ = 5° 30′.4

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	28th	8h	37.0m	1	52	3.0	Kimura	Kimura
,,	,,	9	26.6	1	,,	2.6	Nakamura	Nakamura
,,	,,	11	20.6	1	51	55.2	,,	,,
,,	,,	15	15.5	1	,,	57.8	Ōmori	Ōmori
,,	,,	17	14.0	1	,,	59.8	,,	Kimura
,,	,,	18	53.4	1	,,	55.8	Kimura	Nakamura
Mean					51°	59.0		

$\theta = 51° \quad 59.0$

Reduction to 1895.0 = -0.81

,, ,, sea level = 0.00

$\theta = 51 \quad 58.2$

HORIZONTAL INTENSITY (H)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections		Temp. t_D	Observer	Recorder
									φ_1	φ_2			
Aug.	28th	6h	33m	0.28986	469.25	21.5C	s 5.6356	21.5C	7 1′25″.0	15°57′11″.5	21.6C	Kimura	Ōmori
,,	,,	7	19	0.28997	469.02	23.1	5.6361	23.1	7 1 8.8	15 56 44.2	23.1	Ōmori	Kimura
,,	,,	13	12	0.28963	466.75	29.7	5.6549	30.3	6 59 15.7	15 51 46.3	29.1	Nakamura	Ōmori
,,	,,	13	58	0.28987	466.68	29.7	5.6518	29.8	6 58 57.5	15 51 32.5	29.7	Ōmori	Nakamura
,,	,,	18	23	0.28978	468.26	24.1	5.6426	24.2	7 0 39.1	15 55 28.9	24.1	Nakamura	Kimura
Mean				0.28982									

$H = 0.28982$

Reduction to 1895.0 = 891

,, ,, sea level = 132

$H = 0.28992$

27. SIBATA.

Parade ground (練兵場)

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	29th	21h	21m	5	35′	2″	Midzusima	Kimura
,,	,,	23	12	,,	34	59	,,	,,
,,	30th	2	9	,,	35	23	Kimuaa	Midzusima
,,	,,	3	24	,,	33	59	Midzusima	Kimura
,,	,,	4	30	,,	34	11	,,	Midzusima
,,	,,	5	17	,,	34	17	,,	,,
,,	,,	6	43	,,	34	9	,,	,,
,,	,,	7	25	,,	33	5	Kimura	Kimura
,,	,,	8	18	,,	29	51	Nakamura	Ōmori
,,	,,	9	9	,,	27	6	,,	,,
,,	,,	10	30	,,	21	33	Ōmori	Nakamura
,,	,,	11	2	,,	29	18	Nakamura	,,
,,	,,	11	28	,,	31	20	,,	,,
,,	,,	11	49	,,	31	15	,,	,,
,,	,,	12	34	,,	31	55	,,	,,
,,	,,	13	3	,,	35	32	,,	,,
,,	,,	13	35	,,	33	29	Ōmori	,,
,,	,,	14	13	,,	33	14	Nakamura	Ōmori
,,	,,	14	49	,,	33	12	Ōmori	Nakamura
,,	,,	15	42	,,	33	5	,,	,,
,,	,,	16	32	,,	31	44	,,	Ōmori
Mean				5°	32′	28″		

$\delta = 5 \quad 32.47$

Reduction to 1895.0 = 2.21

,, ,, sea level = 0.00

$\delta = 5 \quad 34.7$

DIP (θ)
Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 30th 5h 44.6m	1	51 45′.8	Midzusima	Midzusima
,, ,, 8 2.7	1	,, 39.6	Kimura	Nakamura
,, ,, 11 1.2	2	,, 43.9	Ōmori	,,
,, ,, 11 32.2	1	,, 42 7	Nakamura	Ōmori
Mean		51° 43′.0		

$\theta = 51°$ 43′.0
Reduction to 1895.0 = −1.07
,, ,, sea level = 0.00
$\theta = 51°$ 41′.9

HORIZONTAL INTENSITY (H)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 30th 4h 43m	0.28955	469.07	20.6C	5.6399 s	20.7C	7° 2′ 4″.4	15 59′ 9″.4	20.5C	Kimura	Nakamura
,, ,, 8 53	0.28930	466.41	28.4	5.6595	28.8	6 59 56.9	15 54 15.0	28.1	Nakamura	Ōmori
,, ,, 10 15	0.28868	466.34	30.2	5.6683	32.5	7 0 26.9	15 54 27.8	31.4	Ōmori	Nakamura
,, ,, 15 19	0.28880	466.62	32.1	5.6634	32.4	6 59 23.8	15 50 53.7	32.3	,,	
,, ,, 16 12	0.28940	465.60	32.0	5.6623	31.8	6 58 26.3	15 50 14.4	32.2	Nakamura	Ōmori
Mean	0.28915									

$H =$ 0.28915
Reduction to 1895.0 = 844
,, ,, sea level = 27
$H =$ 0.28924

28. EBISU.

Bank of the Lake Kamo. (加茂湖畔)

DECLINATION (δ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 31th 16h 56m	5° 43′ 38″	Kimura	Nakamura
,, ,, 17 32	,, 42 18	,,	Kimura
,, ,, 18 31	,, 43 4	,,	,,
,, ,, 19 35	,, 44 33	,,	,,
,, ,, 23 3	,, 46 7	Midzusima	Nakamura
Sept. 1st 0 10	,, 42 17	Nakamura	,,
,, ,, 1 12	,, 41 30	,,	,,
,, ,, 1 53	,, 43 12	,,	,,
,, ,, 4 34	,, 45 46	,,	,,
,, ,, 5 5	,, 44 38	,,	,,
,, ,, 6 4	,, 42 9	Midzusima	,,
,, ,, 6 59	,, 42 0	Nakamura	Midzusima
,, ,, 7 45	,, 40 3	Midzusima	Nakamura
,, ,, 8 23	,, 39 13	Kimura	Kimura
,, ,, 9 23	,, 38 38	,,	,,
,, ,, 10 34	,, 38 29	,,	Midzusima
,, ,, 11 16	,, 40 37	,,	,,
,, ,, 12 13	,, 42 55	,,	Kimura
,, ,, 13 6	,, 44 7	Ōmori	Nakamura
,, ,, 13 48	,, 44 12	Nakamura	Ōmori
,, ,, 14 36	,, 43 8	,,	Nakamura
,, ,, 15 31	,, 42 17	,,	,,
,, ,, 16 27	,, 42 14	Kimura	Kimura
,, ,, 17 25	,, 41 50	,,	,,
,, ,, 18 33	,, 42 9	,,	,,
Mean	5 43′ 2″		

$\delta = 5°$ 43′.03
Reduction to 1895.0 = 2.44
,, ,, sea level = 0.00
$\delta = 5°$ 45′.5

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	31st	17h	13.2m	1	51	51.3	Midzusima	Kimura
,,	,,	19	8.6	1	,,	56.4	Kimura	,,
Sept.	1st	6	31.7	1	,,	53.7	Nakamura	Midzusima
,,	,,	9	4.3	1	,,	56.5	Kimura	Kimura
,,	,,	10	57.3	1	,,	52.0	Midzusima	,,
,,	,,	12	50.2	1	,,	48.6	Ōmori	Nakamura
,,	,,	16	3.6	1	,,	51.7	Nakamura	Kimura
,,	,,	16	58.2	1	,,	52.0	Kimura	,,
,,	,,	18	10.4	1	,,	54.0	,,	,,
Mean					51°	52.9		

$\theta = 51°\ 52.9$

Reduction to 1895.0 = -1.88

,, ,, sea level = 0.00

$\theta = 51°\ 51.0$

HORIZONTAL INTENSITY (H)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_2	Mean Deflections φ_1	Temp. t_D	Observer	Recorder
Aug.	31st	18h	19m	0.29009	467.77	24.2C	s 5.6431	24.8C	6 59′41″.0	15 53′ 1″.5	24.5C	Midzusima	Kimura
,,	,,	23	56	0.29012	467.96	23.3	5.6413	23.4	6 59 56.6	15 53 54.4	23.2	,,	Nakamura
Sept.	1st	5	51	0.28989	468.05	29.0	5.6425	21.9	7 0 16.6	15 54 33.7	22.1	Nakamura	Midzusima
,,	,,	7	32	0.29000	467.62	23.3	5.6444	23.3	6 59 51.9	15 53 48.8	23.3	Midzusima	Nakamura
,,	,,	11	52	0.28966	466.18	29.2	5.6569	29.2	6 58 46.0	15 50 57.8	29.1	Kimura	Midzusima
,,	,,	13	39	0.29005	466.26	29.0	5.6532	29.3	6 58 22.8	15 50 7.5	28.7	Nakamura	Ōmori
,,	,,	14	22	0.29020	466.48	28.4	5.6503	28.8	6 58 23.8	15 50 11.9	28.1	Ōmori	Nakamura
Mean				0.29000									

$H = 0.29000$

Reduction to 1895.0 = 1166

,, ,, sea level = 000

$H = 0.29012$

29. WASIZAKI.

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	2nd	18h	31m	5	42′	41″	Ōmori	Kimura
,,	,,	19	28	,,	43	20	Midzusima	Ōmori
,,	,,	23	40	,,	40	57	Ōmori	,,
,,	3rd	0	51	,,	40	53	,,	,,
,,	,,	3	9	,,	42	23	,,	,,
,,	,,	4	32	,,	42	34	,,	,,
,,	,,	5	15	,,	42	17	,,	,,
,,	,,	5	52	,,	40	35	,,	,,
,,	,,	6	38	,,	38	48	,,	,,
,,	,,	7	12	,,	37	37	,,	,,
,,	,,	8	1	,,	36	0	,,	Nakamura
,,	,,	8	47	,,	36	38	Nakamura	Ōmori
,,	,,	9	21	,,	36	59	,,	,,
,,	,,	10	17	,,	38	8	,,	,,
,,	,,	11	9	,,	40	55	,,	,,
,,	,,	12	18	,,	43	7	,,	Nakamura
,,	,,	13	28	,,	42	19	Ōmori	Ōmori
Mean				5	41′	5″		

$\delta = 5°\ 41.08$

Reduction to 1895.0 = 2.51

,, ,, sea level = 0.00

$\delta = 5°\ 43.6$

DIP (θ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	2nd	18h	16.4m	1	52	8′.4	Midzusima	Nakamura
,,	,,	20	13.5	1	,,	12.2	Ōmori	Ōmori
,,	,,	20	57.4	1	,,	11.7	,,	,,
,,	3rd	0	25.4	1	,,	14.6	,,	,,
,,	,,	6	18.4	1	,,	12.2	,,	,,
,,	,,	7	35.9	1	,,	12.5	,,	,,
,,	,,	9	59.1	1	,,	15.3	Nakamura	Nakamura
,,	,,	10	46.6	1	,,	10.4	,,	,,
Mean					52	12′.4		

$\theta = 52^\circ$ 12′.1
Reduction to 1895.0 = −1.99
,, ,, sea level 0.00
$\theta = 52$ 10′.1

HORIZONTAL INTENSITY (H)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib.n	Temp. t_v	Mean Deflections φ_1			Mean Deflections φ_2	Temp. t_D	Observer	Recorder
							s								
Sept.	2nd	19h	18m	0.28791	467.25	24.7C	5.6671	24.7C	7	2′23″.4		15 59′23″.9	24.7C	Midzusima	Ōmori
,,	3rd	7	35	0.28765	466.01	29.1	5.6776	29.2	7	1 22.8		15 53 47.1	29.0	Nakamura	,,
,,	,,	13	12	0.28763	465.01	33.2	5.6833	32.8	7	0 4.1		15 53 28.3	33.6	Ōmori	Nakamura
,,	,,	17	29	0.28813	466.65	28.7	5.6701	29.4	7	1 19.1		15 53 27.5	28.1	Kimura	Ōmori
,,	,,	18	6	0.28791	466.00	27.5	5.4185	27.7	7	1 15.6		15 53 61.	27.3	Ōmor	Kimura
Mean				0.28785											

$H = 0.28785$
Reduction to 1895.0 = 1130
,, ,, sea level = 000
$H = 0.28795$

30. AIKAWA.

DECLINATION (δ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	6th	11h	20m	5	22′	37″	Nakamura	Nakamura
,,	,,	11	37	,,	23	1	,,	,,
,,	,,	12	21	,,	22	21	,,	,,
,,	,,	13	9	,,	22	3	Midzusima	Ōmori
,,	,,	14	0	,,	22	3	,,	,,
,,	,,	14	40	,,	22	11	,,	,,
,,	,,	15	25	,,	21	49	,,	Midzusima
,,	,,	16	2	,,	21	4	,,	,,
,,	,,	26	41	,,	20	23	,,	,,
,,	,,	17	23	,,	20	5	,,	,,
,,	,,	18	12	,,	19	25	,,	,,
,,	,,	18	48	,,	20	1	Nakamura	Ōmori
,,	,,	19	10	,,	21	17	,,	,,
,,	,,	22	42	,,	20	6	Midzusima	Nakamura
,,	,,	23	37	,,	20	12	,,	,,
,,	7th	0	39	,,	20	15	Nakamura	,,
,,	,,	1	10	,,	19	51	Midzusima	Midzusima
,,	,,	2	37	,,	19	37	Nakamura	Nakamura
Mean				5°	20′	7″		

$\delta = 5^\circ$ 20′.12
Reduction to 1895.0 = 2.11
,, ,, sea level = −0.01
$\delta = 5$ 22′.3

DIP (θ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time)				Needle No.	θ		Observer	Recorder
Sept.	6th	8h	0.7m	1	52	11.3	Midusima	Midzusima
,,	,,	12	51.6	1	,,	11.5	Nakamura	Nakamura
,,	,,	17	4.0	--	,,	11.3	Midusima	Midzusima
,,	7th	2	12.5	1	,,	11.8	,,	Nakamura
Mean					52°	11.5		

$\theta = 52 \quad 11.5$
Reduction to 1895.0 $= \quad -2.11$
,, ,, sea level $= \quad 0.00$
$\theta = 52 \quad 9.4$

HORIZONTAL INTENSITY (H)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time)				H	M	Mean Temp.	Time of 1-Vibn.	Tem. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	6th	13h	44m	0.28722	465.94	25.6C	5.6836s	25.7C	7 2′37″8	16° 0′17″5	25.7C	Midzusima	Ōmori
,,	,,	14	31	0.28723	466.02	26.4	5.6823	26.9	7 2 32.5	16 0 1.9	26.0	Ōmori	Midzusima
,,	,,	19	29	0.28707	467.22	21.9	5.6759	22.1	7 3 48.2	16 2 47.5	21.8	Nakamura	Ōmori
,,	,,	23	25	0.28788	468.92	19.8	5.6572	19.9	7 4 20.2	16 4 16.5	19.7	Midzusima	Nakamura
,,	7th	0	18	0.28731	467.80	19.6	5.6692	19.5	7 4 10.0	16 3 58.1	19.7	Nakamura	Midzusima
,,	,,	1	28	0.28725	468.18	18.7	5.6678	18.7	7 4 30.0	16 4 40.2	18.7	Midzusima	Nakamura
Mean				0.28734									

$H = \quad 0.28734$
Reductions to 1895.0 $= \quad 1208$
,, ,, sea level $= \quad 67$
$H = \quad 0.28747$

31. OGI.

DECLINATION (δ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	7th	23h	54m	5°	7′	3″	Midzusima	Midzusima
,,	8th	0	56	,,	6	25	,,	,,
,,	,,	1	46	,,	6	2	,,	,,
,,	,,	2	43	,,	5	39	,,	,,
,,	,,	3	34	,,	5	14	,,	,,
,,	,,	4	38	,,	4	36	,,	,,
,,	,,	8	4	,,	2	21	,,	,,
,,	,,	9	15	,,	5	26	Ōmori	Ōmori
,,	,,	9	39	,,	5	42	,,	,,
,,	,,	10	52	,,	9	10	,,	Kimura
,,	,,	11	29	,,	10	39	,,	Ōmori
,,	,,	12	21	,,	11	1	,,	,,
,,	,,	13	13	,,	12	16	,,	Nakamura
,,	,,	13	58	,,	12	13	Nakamura	Ōmori
,,	,,	14	49	,,	9	58	,,	Nakamura
,,	,,	15	32	,,	9	28	,,	,,
,,	,,	16	19	,,	7	13	,,	,,
,,	,,	17	3	,,	6	25	,,	,,
,,	,,	17	56	,,	7	40	Kimura	,,
,,	,,	18	43	,,	9	25	,,	,,
,,	,,	19	26	,,	8	51	,,	Midzusima
,,	,,	19	55	,,	8	39	Midzusima	,,
,,	,,	22	25	,,	7	56	Ōmori	Ōmori
,,	9th	0	1	,,	6	38	,,	Midzusima
,,	,,	0	49	,,	6	28	Midzusima	Ōmori
,,	,,	1	48	,,	6	41	Ōmori	,,
,,	,,	2	54	,,	6	21	,,	,,
,,	,,	4	28	,,	3	46	,,	,,
,,	,,	6	13	,,	5	12	,,	Midzusima
,,	,,	6	56	,,	3	21	Midzusima	Ōmori
,,	,,	7	30	,,	2	38	Ōmori	Midzusima
,,	,,	8	3	,,	2	32	Midzusima	Kimura
,,	,,	8	48	,,	3	33	Kimura	Nakamura
Mean				5°	7′	16″		

$\delta = 5° \quad 7.27$
Reduction to 1895.0 $= \quad 2.37$
,, ,, sea level $= \quad 0.00$
$\delta = 5° \quad 9.6$

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	8th	18h	22.8m	2	51	30'.2	Kimura	Nakamura
,,	,,	19	15.3	2	,,	23.4	Nakamura	Kimura
,,	,,	21	40.4	2	,,	32.3	,,	{ Nakamura Ōmori
,,	,,	23	42.0	2	,,	21.8	Ōmori	Midzusima
,,	9th	0	26.9	2	,,	27.2	Midzusima	Ōmori
,,	,,	1	26.4	2	,,	33.3	Ōmori	,,
,,	,,	5	56.2	2	,,	26.7	,,	Midzusima
,,	,,	6	37.5	2	,,	26.5	Midzusima	Ōmori
,,	,,	7	15.1	2	,,	26.9	Ōmori	Midzusima
,,	,,	7	50.2	2	,,	27.4	Midzusima	Ōmori
,,	,,	9	15.9	2	,,	28.1	Kimura	Nakamura
,,	,,	9	49.6	—	,,	29.6	Nakamura	Kimura
Mean					51	27'.8		

$\theta = 51 \quad 27'.8$

Reduction to 1895.0 = -1.83

,, ,, sea level = 0.00

$\theta = 51 \quad 26'.0$

HORIZONTAL INTENSITY (H)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	8th	10h	29m	0.29285	464.26	32.0C	5.6386 s	32.3C	6 52'43".7	15 37'18".1	31.3C	Ōmori	Kimura
,,	,,	13	47	0.29253	463.87	32.5	5.6415	31.7	6 52 25.0	15 35 32.5	33.2	Nakamura	Ōmori
,,	,,	14	29	0.29253	463.82	32.6	5.6428	32.3	6 52 38.1	15 37 16.5	32.9	Ōmori	Nakamura
,,	,,	17	41	0.29233	465.89	26.7	5.6336	27.5	6 54 58.4	15 42 18.2	26.0	Kimura	,,
,,	9th	8	38	0.29199	465.13	30.2	5.6413	30.7	6 54 21.0	15 40 25.1	29.7	Nakamura	Kimura
Mean				0.29245									

$H = 0.29245$

Reduction to 1895.0 = 1195

,, ,, sea level = 000

$H = 0.29257$

32. ŌZASA.

(字鳴尻ヶ原大字南木山小字三本松)

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	12th	13h	15m	4	14'	24"	Midzusima	Ōmori
,,	,,	13	56	,,	13	32	,,	,,
,,	,,	14	35	,,	12	9	Nakamura	Midzusima
,,	,,	15	15	,,	11	8	,,	,,
,,	,,	15	57	,,	10	33	Ōmori	,,
,,	,,	16	31	,,	9	38	,,	{ Ōmori Nakamura
Mean				4°	8'	40"		

$\delta = 4 \quad 8'.67$

Reduction to 1895.0 = 1.70

,, ,, sea level = 0.06

$\delta = 4° \quad 10'.3$

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	12th	12h	0.8m	2	50°	55′.4	Midzusima	Midzusima / Ōmori
,,	,,	12	29.9	2	,,	53.8	Ōmori	Midzusima
,,	,,	14	59.5	2	,,	52.1	Nakamura	Ōmori
,,	,,	16	16.5	2	,,	57.1	Midzusima	Nakamura
Mean					50°	54′.6		

$\theta = 50°$ 54′.6

Reduction to 1895.0 = −0.52

,, ,, sea level = −0.05

$\theta = 50°$ 54′.0

HORIZONTAL INTENSITY (H)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	12th	13h	48m	0.29508	466.97	23.1 C	5.6604 s	23.7 C	6° 52′ 6″.9	15° 35′ 43″.0	22.5 C	Nakamura	Ōmori
,,	,,	14	25	0.29472	456.48	22.1	5.6056	22.2	6 52 12.5	15 36 11.2	22.0	Midzusima	Nakamura
,,	,,	15	48	0.29571	468.68	19.9	5.5842	20.6	6 52 51.8	15 37 21.5	19.3	Ōmori	Midzusima
Mean				0.29517									

H = 0.29517

Reduction to 1895.0 = 1018

,, ,, sea level = 1170

H = 0.29539

33. WAKASARE.

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	12th	21h	0m	3°	46′	23″	Midzusima	Nakamura
,,	,,	22	56	,,	45	52	Nakamura	Ōmori
,,	,,	23	46	,,	45	24	Ōmori	Nakamura
,,	13th	1	23	,,	45	34	Nakamura	Ōmori
,,	,,	3	37	,,	44	37	,,	,,
Mean				3°	45′	47″		

$\delta = 3°$ 45′.78

Reduction to 1895.0 = 1.64

,, ,, sea level = −0.10

$\delta = 3°$ 47′.3

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	12th	22h	0.0m	2	50°	5′.0	Ōmori	Ōmori
,,	,,	23	23.6	2	49	58.5	Nakamura	,,
,,	13th	0	16.0	2	,,	57.2	,,	,,
,,	,,	0	54.8	2	50	4.8	Ōmori	Nakamura
,,	,,	3	53.5	2	,,	0.3	Midzusima	Midzusima
,,	,,	4	9.8	2	49	57.1	,,	,,
Mean					50°	0′.5		

$\theta = 50°$ 0′.5

Reduction to 1895.0 = −0.39

,, ,, sea level = −0.08

$\theta = 50°$ 0′.0

HORIZONTAL INTENSITY (*H*)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 13th 2^h 10^m	0.29827	470.24	8.3 C	s 5.5489	8.3 C	6 50′30″.0	15°31′39″.4	8.4 C	Nakamura	Ōmori
„ „ 3 10	0.29857	470.23	8.4	5.5461	8.4	6 50 16.2	15 31 23.1	8.5	Ōmori	Nakamura
Mean	0.29842									

H = 0.29842
Reduction to 1895.0 = 982
„ „ sea level = 1806
H = 0.29870

34. ASAMA.

DECLINATION (δ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 13th 12^h 24^m	3 11′ 30″	Nakamura	Ōmori

δ = 3 11.50
Reduction to 1895.0 = 1.63
„ „ sea level = −0.17
δ = 3 13.0

DIP (θ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 21st 12^h 22.0^m	2	52 46.7	Midzusima	Ōmori

θ = 52° 46.7
Reduction to 1895.0 = −0.43
„ „ sea level = −0.17
θ = 52 46.1

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 13th 12^h 7.8^m	2	50° 45.8	Ōmori	Ōmori
„ „ 13 43.3	2	„ 44.0	Nakamura	Nakamura
Mean		50° 44.9		

θ = 50° 44.9
Reduction to 1895.0 = −0.39
„ „ sea level = −0.17
θ = 50° 44.4

HORIZONTAL INTENSITY (*H*)
(* *Value deduced from Vibration only by assuming Value of M*)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t	Observer	Recorder
Sept. 13th 14^h 55^m	*0.30156	469.72	20.2C	s 5.5373	20.2C	(6 47′53″.1	15 22′29″.0	17.8C)	Ōmori	Nakamura
„ „ 15 40	0.30156	470.05	18.6	5.5353	20.3	6 45 36.9	15 20 16.9	16.9	Nakamura	Ōmori
Mean	0.30156									

H = 0.30156
Reduction to 1895.0 = 1002
„ „ sea level = 3199
H = 0.30198

35. MATUIDA.

DECLINATION (δ)

Observations of the East Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 14th 21h 40m	4° 40′ 59″	Nakamura	Midzusima
,, ,, 22 46	,, 40 26	Midzusima	Kimura
,, 15th 0 30	,, 38 4	,,	Midzusima
,, ,, 3 19	,, 37 0	,,	,,
,, ,, 4 37	,, 37 3	,,	,,
,, ,, 5 39	,, 37 13	,,	,,
,, ,, 6 26	,, 36 16	,,	,,
,, ,, 7 20	,, 36 35	,,	,,
,, ,, 7 52	,, 36 38	,,	,,
,, ,, 8 26	,, 36 31	Kimura	Kimura Nakamura
,, ,, 9 45	,, 38 35	Nakamura	Kimura
,, ,, 10 33	,, 41 15	Kimura	Nakamura
,, ,, 11 36	,, 44 37	,,	Kimura
,, ,, 12 32	,, 45 6	,,	,,
,, ,, 13 22	,, 45 4	,,	,,
,, ,, 14 13	,, 44 25	Nakamura	Nakamura
,, ,, 14 50	,, 43 10	,,	,,
,, ,, 15 31	,, 42 7	Midzusima	Midzusima
,, ,, 16 16	,, 40 39	,,	,,
,, ,, 17 7	,, 40 0	,,	,,
,, ,, 17 48	,, 39 48	,,	,,
,, ,, 19 22	,, 39 53	,,	,,
,, ,, 19 59	,, 39 53	Kimura	Nakamura
Mean.	4 39′ 37″		

δ = 4 39′.62
Reduction to 1895.0 = 1.59
,, ,, sea level = −0.02
δ = 4 41′.2

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 15th 8h 15.5m	2	50° 1′.5	Midzusima	Midzusima
,, ,, 11 22.3	2	49 57.3	Kimura	Kimura ,,
,, ,, 13 55.3	2	,, 56.7	,,	Nakamura
,, ,, 14 41.3	2	50 0.2	Nakamura	,,
,, ,, 16 39.8	2	,, 1.2	Midzusima	Midzusima
,, ,, 18 16.7	2	,, 0.9	,,	,,
,, 16th 0 35.1	2	,, 1.7	Kimura	Kimura.
,, ,, 1 56.0	2	49 58.3	Nakamura	,, Nakamura.
Mean		49° 59′.7		

θ = 49° 59′.7
Reduction to 1895.0 = −0.39
,, ,, sea level = 0.02
θ = 49° 59′.3

HORIZONTAL INTENSITY (*H*)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp.	Observer	Recorder
Sept. 14th 22h 30m	0.29661	466.37	21°.9C	5.6041 s	22.3C	6°49′31″.5	15°29′38″.4	21°.6C	Midzusima	Kimura
,, 15th 9 31	0.29607	465.69	21.8	5.6129	21.8	6 49 31.4	15 29 49.6	21.8	Nakamura	,,
,, ,, 10 20	0.29599	464.84	24.5	5.6176	23.9	6 48 43.5	15 28 18.5	25.1	Kimura	Nakamura
,, ,, 15 22	0.29601	464.86	24.5	5.6189	24.7	6 48 43.8	15 27 45.9	24.4	Midzusima	,,
,, ,, 20 51	0.29598	435.84	21.0	5.6133	21.2	6 49 48.1	15 30 20.6	20.8	Kimura	,,
Mean	0.29613									

H = 0.29613
Reduction to 1895.0 = 1020
,, ,, sea level = 335
H = 0.29627

36. TAKASAKI.

DECLINATION (δ)

Observations of the East Party, 1893

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	16th	15h	53m	4°	54′	7″	Midzusima	Nakamura
..	..	16	52	..	53	20	Nakamura	..
..	..	17	32	..	53	15	..	..
..	..	18	24	..	53	8	..	Kimura
..	..	19	24	..	52	41	Kimura	Nakamura
..	..	20	16	..	53	11	Nakamura	Kimura
..	..	21	3	..	53	12	Midzusima	Midzusima
..	..	22	12	..	53	3	..	..
..	..	23	27	..	53	35	..	..
..	17th	0	40	..	52	12	..	..
..	..	1	47	..	51	47	..	..
..	..	2	31	..	51	28	..	..
..	..	3	39	..	51	7	..	..
..	..	4	37	..	50	27	..	..
..	..	5	36	..	50	2	..	..
..	..	6	18	..	49	57	..	..
..	..	7	15	..	48	52	..	..
..	..	8	11	..	50	0	Kimura	Nakamura
..	..	8	57	..	51	18	Nakamura	..
..	..	9	32	..	52	56	..	..
..	..	10	22	..	53	28	..	..
..	..	11	12	..	55	23	..	..
..	..	11	40	..	56	22	..	..
..	..	12	38	..	56	34	Kimura	Kimura
..	..	13	22	..	55	54	Nakamura	..
..	..	14	14	..	55	42	Kimura	..
..	..	15	21	..	54	56	..	..
..	..	16	14	..	54	5	Midzusima	Midzusima
..	..	16	58	..	53	38	..	..
..	..	18	10	..	52	27	..	..
..	..	19	8	..	52	34	..	..
..	..	20	16	..	52	29	Kimura	Nakamura
..	..	21	32	..	52	25	Nakamura	Kimura
..	..	22	22	..	52	33	..	Nakamura
..	..	23	12	..	49	48	..	..
..	18th	0	18	..	52	14	..	..
..	..	1	17	..	50	28	..	..
..	..	2	16	..	50	13	..	..
..	..	5	13	..	50	36	..	..
..	..	6	9	..	50	30	Kimura	Kimura
..	..	7	15	..	51	3	..	..
..	..	8	20	..	50	23	..	..
..	..	9	13	..	50	53	Midzusima	Midzusima
..	..	10	13	..	53	10	..	..
..	..	11	15	..	55	43	..	..
..	..	12	5	..	54	42	..	..
..	..	12	50	..	55	28	..	..
..	..	13	30	..	55	41	Kimura	Kimura
..	..	14	37	..	54	25	..	..
..	..	15	55	..	54	7	..	..
..	..	19	24	..	52	35	Nakamura	Nakamura
..	..	20	2	..	53	35	..	..
Mean				4	52′	34″		

$\delta = 4° \quad 52.'57$

Reduction to 1895.0 = 1.48

" " sea level = −0.01

$\delta = 4° \quad 54.'0$

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	16th	16h	27.9m	2	50°	9′.1	Nakamura	Kimura / Nakamura
,,	,,	17	3.6	2	..	10.8	,,	Nakamura
..	17th	1	28.5	2	..	7.5	Midzusima	Midzusima
..	,,	5	3.0	2	..	7.4	,,	,,
,,	,,	7	45.1	2	,,	7.4	,,	,,
..	..	10	3.5	2	..	5.7	Nakamura	Nakamura
..	..	10	52.3	2	,,	8.7	,,	,,
..	..	12	18.2	2	,,	6.7	..	,,
..	..	13	54.4	2	,,	5.2	Kimura	Kimura
..	..	14	38.8	2	..	5.7	..	,,
..	..	15	3.3		..	5.2	..	,,
..	18th	13	54.7	2	,,	10.2	..	,,
..	..	14	18.5	2	,,	3.9	..	..
..	..	15	24.5		,,	10.7	..	..
..	..	18	9.2	2	,,	3.8	Nakamura	Nakamura
..	..	18	40.7	2	,,	9.4	,,	..
Mean					50	7.3		

θ = 50° 7′.3

Reduction to 1895.0 = 0.00

" " sea level = −0.01

θ = 50° 7′.3

HORIZONTAL INTENSITY (*H*)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_n	Observer	Recorder
Sept.	16th	19h	8m	0.29605	465.44	23.0 C	5.6153 s	23.3 C	6 49′ 14″.0	15 28′ 51″.9	22.7 C	Kimura	Nakamura
,,	,,	20	5	0.29579	465.67	22.0	5.6161	22.4	6 49 39.3	15 29 35.0	21.7	Nakamura	Kimura
,,	17th	3	24	0.29577	466.77	20.6	5.6103	21.1	6 49 47.5	15 30 18.5	20.0	Midzusima	Midzusima
..	,,	8	45	0.29590	467.15	19.2	5.6083	19.4	6 50 50.4	15 32 19.1	19.0	Kimura	Nakamura
..	..	13	12	0.29591	465.88	21.3	5.6131	21.3	6 49 39.0	15 29 41.0	21.4	Nakamura	Kimura
,,	,,	16	52	0.29642	466.35	20.0	5.6083	20.2	6 49 40.3	15 30 3.4	19.7	Midzusima	Midzusima
..	18th	11	1	0.29576	465.91	26.2	5.6153	21.7	6 50 21.3	15 31 46.9	20.8	,,	..
Mean				0.29594									

H = 0.29594

Reduction to 1895.0 = 826

" " sea level = 129

H = 0.29604

37. NUMATA.

(天王社内)

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	19th	22h	43m	4	34′	27″	Nakamura	Nakamura
..	..	23	8	,,	34	7	..	..
..	,,	23	58	..	33	9	..	..
,,	20th	1	16	..	32	39	..	..
..	..	2	13	..	31	46	..	..
..	..	3	34	..	30	58	,,	,,
..	..	5	10	..	30	21	..	..
..	,,	6	20	,,	30	32	..	,,
..	..	7	9	..	30	10	..	,,
..	..	8	9	..	29	33	Kimura	,,
..	..	9	32	..	30	20	..	Kimura
..	..	10	38	,,	32	41	,,	,,
..	..	11	26	..	31	8	Midzusima	Midzusima
,,	..	12	15	..	35	7	..	,,
..	..	12	58	..	34	47	..	,,
..	..	13	40	..	34	9	..	Kimura
..	..	14	40	..	33	8	Kimura	..
,,	..	15	47	..	31	1	Nakamura	,,
,,	..	16	38	..	30	9	Kimura	Nakamura
,,	,,	17	48	,,	28	26	Nakamura	..
Mean				4	31′	59″		

δ = 4° 31′.98

Reduction to 1895.0 = 1.62

" " sea level = −0.03

δ = 4° 33′.6

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
June.	29th	21h	22.0m	4°	49′	6″	Nakamura	Tamaru
"	"	22	22.2	..	49	10	..	Imamura
..	..	23	22.6	..	48	9	..	Nakamura
..	30th	2	46.6	..	46	13	..	..
"	..	4	58.7	..	47	5	..	..
..	..	6	6.8	..	46	35	..	..
..	..	6	54.4	..	46	32	..	..
"	"	7	57.2	..	45	10	Tamaru	Imamura
..	..	9	21.4	..	47	29	..	..
..	"	10	21.8	..	48	58	Imamura	Tamaru
..	..	11	28.4	..	54	0	..	Imamura
..	"	11	42.1	..	54	26	..	..
..	..	12	0.3	..	51	53	..	..
..	..	12	10.3	..	52	3	"	..
..	..	13	8.4	..	52	21	Nakamura	Nakamura
..	..	14	13.3	..	52	34	Tamaru	Imamura
..	..	15	10.5	..	53	3	Imamura	"
..	..	15	28.1	..	52	24	"	Tamaru
..	..	15	52.1	..	51	39	Tamaru	"
..	..	16	56.7	..	50	41	"	Imamura
..	..	17	46.1	..	50	59	Imamura	"
..	..	18	49.7	..	50	42	Nakamura	Nakamura
"	..	20	18.9	..	49	14	Tamaru	Imamura
July.	1st	0	49.7	..	47	53	Imamura	..
Mean				4°	49′	4″		

δ = 4° 49′.07
Reduction to 1895.0 = −0.62
" " sea level = −0.03
δ = 4° 48′.4

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	19th	21h	52.6m	2	50°	21′.9	Midzusima	Midzusima
	20th	5	57.6	2	..	25.2	Nakamura	Nakamura
..	..	6	51.0	2	..	24.4	"	..
..	..	13	21.2	2	..	25.8	Midzusima	{ Midzusima Kimura
..	..	14	19.5	2	..	26.8	Kimura	Kimura
..	..	17	5.4	2	..	22.2	"	Nakamura
..	..	17	32.4	2	..	26.7	Nakamura	Kimura
Mean					50°	24′.7		

θ = 50° 24′.7
Reduction to 1895.0 = −0.25
" " sea level = −0.03
θ = 50° 24′.4

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
June.	30th	5h	38m	1	50°	12′.7	Nakamura	Nakamura
..	"	9	50	1	"	13.7	Imamura	Tamaru
..	"	13	47	1	"	13.9	Nakamura	{ Nakamura Imamura
July.	1st	1	31	1	"	16.2	Imamura	..
Mean					50°	14′.1		

θ = 50° 14′.1
Reduction to 1895.0 = 0.10
" " sea level = −0.03
θ = 50° 14′.2

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M*)

Observations of the South Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t	Observer	Recorder
Sept. 20th 1^h 1^m	0.29399	465.43	23.2C	s 5.6314	21.8C	6 51′44″.1	15 31′56″.5	24.8C	Nakamura	Nakamura
,, ,, 11 16	0.29385	466.20	20.9	5.6308	20.9	6 52 33.9	15 35 58.4	20.9	Midzusima	Kimura
,, ,, 15 34	*0.29387	466.50	20.8	5.6287	20.8	(6 53 49.0	15 37 53.6	20.0)	Nakamura	,,
Mean	0.29390									

H = 0.29390
Reduction to 1895.0 = 834
,, ,, sea level = 546
H = 0.29404

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_0	Observer	Recorder
June 25th 22^h 56^m	0.29480	436.27	21.1C	s 5.8604	21.3C	6 22′44″.1	14 33′33″.8	20.8C	Imamura	Nakamura
,, 30th 8 59	0.29463	436.89	19.4	5.8573	19.1	6 23 13.8	14 31 21.3	19.4	Tamaru	Imamura
,, ,, 12 53	0.29475	435.12	22.8	5.8681	22.8	6 21 47.5	14 31 34.4	22.8	Imamura	Nakamura
,, ,, 16 25	0.29482	436.32	20.6	5.8591	20.5	6 22 30.6	14 32 48.8	20.6	,,	Tamaru
,, ,, 19 34	0.29500	436.62	19.1	5.8559	19.2	6 23 3.8	14 34 45.0	18.9	Tamaru	Nakamura
Mean	0.29480									

H = 0.29480
Reduction to 1895.0 = −320
,, ,, sea level = 546
H = 0.29482

38. KUMAGAI.

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	21^s	18^h	40^m	4	19′	26″	Nakamura	Kimura
,,	,,	20	7	,,	18	20	Kimura	Nakamura
,,	,,	20	54	,,	18	53	Nakamura	Kimura
,,	,,	23	37	,,	16	16	Midzusima	Midzusima
,,	22nd	0	31	,,	16	38	,,	,,
,,	,,	1	26	,,	16	32	,,	,,
,,	,,	2	56	,,	16	1	,,	,,
,,	,,	4	18	,,	15	15	,,	,,
,,	,,	5	50	,,	14	0	,,	,,
,,	,,	6	55	,,	13	36	,,	,,
,,	,,	7	41	,,	13	0	,,	,,
,,	,,	8	29	,,	13	32	,,	,,
,,	,,	9	42	,,	15	41	Kimura	Nakamura
,,	,,	10	21	,,	17	43	Nakamura	Kimura
,,	,,	11	19	,,	20	38	,,	Nakamura
,,	,,	12	8	,,	22	0	,,	,,
,,	,,	12	49	,,	24	8	,,	,,
,,	,,	13	44	,,	25	37	,,	,,
,,	,,	14	52	,,	24	1	Kimura	Kimura
,,	,,	15	49	,,	22	28	,,	,,
,,	,,	16	44	,,	21	18	Midzusima	Midzusima
,,	,,	17	23	,,	21	0	,,	,,
,,	,,	18	13	,,	20	33	,,	Kimura Nakamura
,,	,,	18	54	,,	21	10	Kimura	,,
,,	,,	20	12	,,	19	18	Nakamura Midzusima	Kimura
,,	,,	21	31	,,	19	23	Kimura	Nakamura
Mean				4	18′	7″		

δ = 4 18′.12
Reduction to 1895.0 = 1.37
,, ,, sea level = 0.00
δ 4 19.5

DIP (θ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	Dip		Observer	Recorder
Sept.	22nd	8h	8.6m	2	49	57.9	Midzusima	Midzusima
..	..	10	54.2	2	50	0.0	Kimura	Kimura Nakamura
..	..	11	49.1	2	..	0.8	Nakamura	..
..	..	12	33.3	2	49	57.6	..	..
..	..	15	27.2		..	55.6	Kimura	Kimura
..	..	17	44.1	2	..	57.8	Midzusima	Midzusima
..	..	19	29.4	2	50	2.2	Nakamura	Kimura
..	..	21	17.4	2	49	53.2	Kimura	Nakamura
Mean					49	58.1		

θ 49 58.1
Reduction to 1895.0 = 0.26
.. ,, sea level = 0.00
θ = 49 58.4

HORIZONTAL INTENSITY (H)
(* Value deduced from Vibration only by Assuming Value of M)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	21st	19h	47m	*0.29573	466.46	22.1C	5.6112	22.1C	(6 48′45.″6	15 29′ 4.″5	22.4C)	Kimura	Nakamura
,,	,,	20	38	0.29564	466.46	22.3	5.6123	22.3	6 50 39.0	15 32 8.1	22.3	Nakamura	Kimura
..	22nd	9	26	0.29520	466.48	21.0	5.6166	21.2	6 50 43.2	15 31 24.0	20.8	Kimura	Nakamura
..	..	10	13	0.29566	465.46	22.0	5.6181	22.0	6 50 1.0	15 31 9.8	22.0	Nakamura	Kimura
..	..	13	33	*0.29551	464.83	25.6	5.6236	25.6	(6 53 38.1	15 35 32.5	25.5)	,,	Nakamura
..	..	14	32	*0.29530	464.64	26.2	5.6289	26.2	(6 47 5.1	15 34 41.6	25.7)	Kimura	..
..	..	16	25	*0.29555	465.29	24.0	5.6202	24.0	(6 50 25.6	15 30 4.2	23.6)	Midzusima	Kimura
..	..	18	44	0.29524	466.29	22.2	5.6171	22.3	6 49 56.4	15 28 47.0	22.2	..	Nakamura
,,	,,	20	53	0.29576	465.52	21.7	5.6167	21.8	6 49 27.5	15 29 7.2	21.7	Nakamura	Midzusima
Mean				0.29551									

H = 0.29551
Reduction to 1895.0 = 754
.. .. sea level = 38
H = 0.29559

39. ODAWARA.

Common School. (小學校)

DECLINATION (δ)
Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	26th	12h	18m	4	37′	56″	Midzusima	Kimura
..	..	13	51	..	39	53	..	Midzusima
..	,,	14	34	..	38	15	..	..
..	,,	15	20	..	36	42	..	..
,,	,,	16	28	..	34	57	,,	,,
,,	,,	17	15	,,	34	51	..	..
,,	..	18	12	..	34	41	..	,,
,,	,,	19	18	,,	34	7	,,	..
,,	..	20	9	,,	34	38	Kimura	Nakamura
,,	..	21	17	..	32	21	Nakamura	Kimura
,,	,,	22	34	,,	31	52	,,	Nakamura
..	27th	1	8	..	31	51	Kimura	Kimura
..	..	2	22	,,	32	49	..	,,
,,	..	3	36	,,	28	52	Nakamura	Nakamura
,,	,,	4	17	,,	29	55	..	..
,,	,,	5	19	,,	31	32	..	..
,,	,,	5	43	,,	31	19	,,	,,
,,	,,	6	27	..	30	58	..	,,
,,	,,	7	56	,,	30	34	Kimura	..
,,	,,	9	3	,,	33	52	Midzusima	Midzusima
,,	,,	9	47	,,	35	48	,,	..
,,	,,	10	44	..	35	55	..	,,
,,	..	11	39	..	37	40	..	..
,,	..	12	23	..	39	7	..	..
,,	,,	13	28	..	38	45	Kimura	Nakamura
,,	,,	15	4	..	35	52	Nakamura	..
..	,,	15	38	,,	35	32	..	..
..	,,	16	28	,,	33	0	..	,,

To be Continued.

Continued

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	27th	17h	53m	4°	34′	14″	Nakamura	Kimura
,,	,,	18	18	,,	34	54	,,	,,
,,	,,	19	6	,,	33	22	Kimura	Nakamura
,,	,,	19	54	,,	32	57	Midzusima	Midzusima
,,	,,	20	50	,,	32	12	,,	,,
,,	,,	21	43	,,	32	27	,,	,,
,,	,,	22	33	,,	32	49	,,	,,
,,	,,	23	29	,,	32	16	,,	,,
,,	28th	2	57	,,	30	24	,,	,,
,,	,,	3	45	,,	31	33	,,	,,
,,	,,	5	20	,,	31	44	,,	,,
,,	,,	6	40	,,	30	39	,,	,,
Mean				4	33′	35″		

$\delta = 4 \quad 33'.58$

Reduction to 1895.0 = 1.00

,, ,, sea level = 0.00

$\delta = 4 \quad 34'.6$

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	26th	14h	56.0m	2	49	4.8	Midzusima	Midzusima
,,	,,	23	35.8	2	,,	9.6	Kimura	Kimura
,,	27th	1	42.1		,,	8.0	,,	,,
,,	,,	2	23.6	2	,,	11.4	,,	,,
,,	,,	4	54.0	2	,,	7.0	Nakamura	Nakamura
,,	,,	8	38.4	2	,,	8.8	Midzusima	Midzusima
,,	,,	11	58.9	2	,,	7.6	,,	,,
,,	,,	15	59.4	2	,,	7.9	Nakamura	Nakamura
Mean					49	8′.1		

$\theta = 49 \quad 8'.1$

Reduction to 1895.0 = 1.01

,, ,, sea level = 0.00

$\theta = 49 \quad 9'.1$

HORIZONTAL INTENSITY (H)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	26th	16h	17m	0.30268	463.31	26.9C	s 5.5665	27.4C	6 38′33″.0	15 4′28″.1	26.4C	Midzusima	Midzusima
,,	,,	17	56	0.30221	464.36	24.7	5.5636	24.8	6 39 47.1	15 6 56.0	24.5	,,	,,
,,	27th	7	30	0.30208	465.52	20.9	5.5581	21.2	6 40 59.6	15 9 35.4	20.6	Nakamura	Kimura
,,	,,	11	6	0.30168	464.18	24.2	5.5697	24.4	6 40 25.0	15 8 28.7	24.0	Kimura	Nakamura
,,	,,	17	10	0.30169	464.39	23.1	5.5680	23.2	6 40 38.7	15 9 8.1	23.1	Nakamura	Kimura
,,	28th	7	25	0.30229	463.38	27.5	5.5676	27.1	6 38 49.6	15 5 5.3	27.9	Midzusima	Midzusima
Mean				0.30210									

$H = 0.30210$

Reduction to 1895.0 = 720

,, ,, sea level = 000

$H = 0.30217$

40. ATAMI.

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	2nd	13h	49m	4°	30′	28″	Kimura	Kimura
"	"	14	39	"	28	59	"	"
"	"	15	53	"	26	4	"	"
"	"	16	46	"	25	18	"	"
"	"	17	19	"	25	11	Nakamura	"
"	"	18	6	"	23	53	"	"
"	"	19	7	"	24	30	Kimura	Nakamura
"	"	20	26	"	23	21	Midzusima	Midzusima / Kimura
"	"	23	7	"	25	34	"	Midzusima
"	3rd	0	6	"	24	51	"	"
"	"	1	8	"	23	57	"	"
"	"	2	13	"	23	37	"	"
"	"	3	23	"	24	1	"	"
"	"	4	28	"	24	29	"	"
"	"	5	40	"	23	55	"	"
"	"	6	48	"	26	44	"	"
"	"	7	31	"	25	32	"	"
"	"	8	33	"	27	3	Nakamura	Kimura
"	"	9	29	"	28	10	Kimura	Nakamura
"	"	10	9	"	28	39	Nakamura	"
"	"	11	3	"	28	49	"	"
"	"	11	41	"	30	2	"	"
"	"	12	15	"	30	25	"	"
"	"	12	55	"	29	29	"	"
"	"	13	42	"	28	32	Kimura	Kimura
"	"	14	30	"	28	23	Nakamura	"
"	"	15	41	"	27	17	"	Midzusima
"	"	16	27	"	26	6	Midzusima	Kimura
Mean				4	25′	46″		

δ = 4° 25′.77
Reduction to 1895.0 = 0.95
" " sea level = 0.00
δ = 4° 26′.7

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Oct.	2nd	15h	4.0m	2	48°	54′.6	Kimura	Kimura
"	"	15	33.3	2	"	58.1	"	"
"	"	16	30.7	2	"	55.1	"	"
"	3rd	10	11.7	2	"	56.0	Nakamura	Nakamura
"	"	11	23.0	2	"	58.2	"	"
"	"	12	34.8	2	"	56.4	"	"
"	"	14	12.8	2	"	58.5	Kimura	Nakamura
"	"	15	26.1	2	"	57.4	"	Midzusima
"	"	15	55.3		"	55.5	Midzusima	Kimura
"	"	16	13.8	2	"	59.6	"	"
Mean					48°	56′.9		

θ = 48° 56′.9
Reduction to 1895.0 = 1.0
" " sea level = 0.01
θ = 48° 57′.9

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_0	Observer	Recorder
Oct.	2nd	11h	10m	0.29384	463.75	26.7C	5.6459 s	26.6C	6°50′23″.4	15°31′12″.5	26.8C	Midzusima	Nakamura / Kimura
"	"	18	57	0.29354	464.44	23.4	5.6447	23.8	6 51 53.0	15 35 1.0	23.1	Nakamura	Kimura
"	"	21	8	0.29371	464.57	22.8	5.6428	23.2	6 51 45.4	15 34 48.4	22.5	Kimura	Nakamura
"	3rd	3	6	0.29376	464.62	21.7	5.6412	21.7	6 51 59.9	15 35 51.4	21.8	Midzusima	Midzusima
"	"	9	11	0.29292	464.87	21.3	5.6455	21.0	6 52 52.2	15 37 8.5	21.7	Kimura	Nakamura
"	"	9	57	0.29325	465.13	22.5	5.6429	22.1	6 52 27.7	15 36 5.0	23.0	Nakamura	Kimura
"	"	15	2	0.29318	464.79	20.7	5.6455	20.6	6 52 55.6	15 37 59.4	20.9	Kimura	Nakamura
Mean				0.29346									

H = 0.29346
Reduction to 1895.0 725
" " sea level 000
H = 0.29353

41. SIMODA.

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	7th	11h	26m	3°	48′	21″	Kimura	Nakamura
,,	,,	12	9	,,	49	25	Midzusima	,,
,,	,,	12	54	,,	49	40	Nakamura	Midzusima
,,	,,	14	12	,,	47	53	Kimura	Kimura
,,	,,	15	17	,,	45	22	,,	,,
,,	,,	16	9	,,	45	8	Midzusima	,,
,,	,,	17	0	,,	44	59	Kimura	,,
,,	,,	17	41	,,	43	54	Midzusima	Midzusima
,,	,,	18	8	,,	42	16	,,	,,
,,	,,	23	0	,,	39	14	Nakamura	Nakamura
,,	,,	23	51	,,	39	4	,,	,,
,,	8th	0	52	,,	38	40	,,	,,
,,	,,	2	32	,,	38	7	,,	,,
,,	,,	3	54	,,	38	58	,,	,,
,,	,,	5	5	,,	37	42	,,	,,
,,	,,	5	49	,,	37	39	,,	,,
,,	,,	6	39	,,	37	30	Nakamura	Nakamura
,,	,,	7	55	,,	38	24	,,	,,
,,	,,	8	47	,,	42	16	Midzusima	Midzusima
,,	,,	9	47	,,	42	8	,,	,,
,,	,,	10	50	,,	44	15	Kimura	Kimura
,,	,,	11	39	,,	45	52	Midzusima	,,
,,	,,	12	30	,,	43	59	,,	,,
,,	,,	13	39	,,	47	6	Nakamura	Nakamura
,,	,,	14	34	,,	45	36	,,	,,
,,	,,	15	7	,,	44	54	Midzusima	,,
Mean				3	41′	33″		

$\delta = 3° \; 41'.55$
Reduction to 1895.0 = 0.79
,, ,, sea level = 0.00
$\delta = 3° \; 42'.3$

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Oct.	7th	11h	11.1m	1	47	54.6	Midzusima	Nakamura
,,	,,	13	47.2	1	,,	49.4	Kimura	Kimura
,,	,,	14	56.3	1	,,	52.8	,,	,,
,,	,,	18	0.5	1	,,	53.8	Midzusima	Midzusima
,,	8th	0	20.3	1	,,	52.8	Nakamura	Nakamura
,,	,,	6	21.2	1	,,	48.3	,,	,,
,,	,,	7	33.5	1	,,	52.8	,,	,,
,,	,,	11	51.1	1	,,	52.3	Midzusima	Kimura
,,	,,	12	14.7	1	,,	52.0	,,	,,
Mean					47	52.1		

$\theta = 47° \; 52'.1$
Reduction to 1895.0 = 1.23
,, ,, sea level = 0.00
$\theta = 47° \; 53'.3$

HORIZONTAL INTENSITY (H)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections. φ_1	φ_2	Temp. t_D	Observer	Recorder
Oct.	7th	12h	1m	0.30185	464.70	22.0C	s 5.5638	22.1C	6° 40′ 39″.6	15° 9′ 57″.0	21.9C	Nakamura	Midzusima
,,	,,	12	44	0.30170	464.51	22.2	5.5664	22.2	6 40 33.5	15 8 40.2	22.3	Midzusima	Nakamura
,,	,,	16	46	0.30182	464.20	21.7	5.5673	22.3	6 40 40.0	15 9 19.5	21.3	Kimura	Midzusima
,,	8th	9	29	0.30176	465.40	19.2	5.5617	19.1	6 41 21.5	15 10 26.3	19.0	Midzusima	,,
,,	,,	10	33	0.30183	464.68	23.0	5.5640	23.0	6 40 25.6	15 8 14.0	23.1	Kimura	,,
Mean				0.30179									

$H = 0.30179$
Reduction to 1895.0 = 742
,, ,, sea level = 09
$H = 0.30186$

42. MATUZAKI.

DECLINATION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	11th	9h	50m	4°	24′	1″	Midzusima	Midzusima
,,	,,	10	43	,,	25	35	Kimur	,,
,,	,,	11	19	,,	26	34	Midzusima	Kimura
,,	,,	11	52	,,	26	40	,,	Midzusima
,,	,,	12	34	,,	23	47	Kimura	Kimura
,,	,,	13	25	,,	26	51	,,	,,
,,	,,	14	24	,,	26	1	,,	,,
,,	,,	15	27	,,	24	49	,,	,,
,,	,,	16	26	,,	24	51	Midzusima	,,
,,	,,	17	11	,,	24	2	,,	Midzusima
,,	,,	18	1	,,	22	50	,,	,,
,,	,,	19	14	,,	22	46	,,	Kimura
,,	,,	21	28	,,	22	53	Kimura	,,
,,	,,	22	24	,,	21	39	Midzusima	Midzusima
,,	,,	23	37	,,	21	14	,,	,,
,,	12th	0	53	,,	20	1	,,	,,
,,	,,	1	40	,,	24	3	,,	,,
,,	,,	2	38	,,	21	15	,,	,,
,,	,,	7	15	,,	17	12	Kimura	Kimura
,,	,,	8	20	,,	19	4	Midzusima	,,
,,	,,	9	17	,,	20	56	Kimura	,,
,,	,,	10	18	,,	20	20	,,	,,
,,	,,	10	59	,,	22	0	,,	,,
,,	,,	11	33	,,	21	42	,,	,,
,,	,,	12	0	,,	25	2	Midzusima	,,
Mean				4°	22′	14″		

δ = 4° 22.23
Reduction to 1895.0 = 0.83
,, ,, sea level = 0.00
δ = 4° 23.4

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Oct.	11th	13h	54.5m	—	48°	12.8	Kimura	Kimura
,,	,,	14	50.5	—	,,	11.4	,,	,,
,,	,,	15	28.1	2	,,	10.2	,,	Midzusima
,,	,,	16	48.7	2	,,	10.2	Midzusima	,,
,,	,,	17	28.5	—	,,	12.4	,,	,,
,,	12th	8	58.1	—	,,	9.9	Kimura	Kimura
,,	,,	9	51.1	—	,,	9.4	,,	,,
Mean					51°	19.0		

θ = 48° 10.9
Reduction to 1895.0 = 1.10
,, ,, sea level = 0.00
θ = 48 12.0

HORIZONTAL INTENSITY (H)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Oct.	11th	10h	31m	0.30145	463.36	25.5C	5.5768 s	26.0C	6 40′ 6.78	15° 7′52.″5	25.0C	Kimura	Midzusima
,,	,,	11	11	0.30140	463.61	25.8	5.5767	27.0	6 40 27.8	15 8 31.5	24.7	Midzusima	Kimura
,,	,,	15	19	0.30113	462.95	25.4	5.5829	26.1	6 40 10.0	15 7 53.0	24.8	Kimura	Midzusima
,,	12th	2	24	0.30152	466.19	16.8	5.5585	16.9	6 42 23.7	15 12 56.6	16.8	M dzusima	,,
,,	,,	8	11	0.30153	464.93	21.7	5.5661	21.8	6 41 6.2	15 9 59.7	21.7	,,	Kimura
Mean				0.30141									

H = 0.30141
Reduction to 1895.0 = 760
,, ,, sea level = 000
H = 0.30149

43. HUDISAWA.

DELECTION (δ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Times.)				δ			Observer	Recorder
Oct.	17th	17h	58m	4°	32′	24″	Midzusima	Kimura
,,	,,	18	48	,,	30	57	Kimura	,,
,,	,,	20	10	,,	30	54	,,	,,
,,	,,	21	11	,,	31	34	Midzusima	Midzusima
,,	,,	21	35	,,	31	55	,,	,,
,,	,,	22	25	,,	30	43	,,	,,
,,	,,	23	19	,,	30	41	,,	,,
,,	,,	23	55	,,	30	32	,,	,,
,,	18th	0	53	,,	31	40	,,	,,
,,	,,	2	0	,,	33	13	,,	,,
,,	,,	2	41	,,	32	14	,,	,,
,,	,,	3	56	,,	32	17	,,	,,
,,	,,	5	25	,,	30	52	,,	,,
,,	,,	6	16	,,	30	38	,,	Kimura
,,	,,	7	18	,,	30	42	Kimura	Midzusima
,,	,,	7	48	,,	30	40	,,	Kimura
,,	,,	9	0	,,	30	4	,,	,,
,,	,,	9	55	,,	33	4	,,	,,
,,	,,	10	54	,,	35	22	,,	,,
,,	,,	11	57	,,	37	51	Midzusima	,,
,,	,,	12	42	,,	37	42	,,	,,
,,	,,	13	35	,,	38	55	,,	Midzusima
,,	,,	14	19	,,	38	43	,,	,,
,,	,,	15	9	,,	35	56	,,	,,
,,	,,	15	50	,,	34	36	,,	,,
,,	,,	16	45	,,	35	4	,,	,,
,,	,,	17	59	,,	34	0	,,	,,
,,	,,	18	27	,,	33	40	Kimura	Kimura
,,	,,	19	31	,,	33	26	,,	,,
Mean				4°	32′	54″		

$\delta = 4^\circ\ 32'.90$
Reduction to 1895.0 = 0.96
,, ,, sea level = 0.00
$\delta = 4^\circ\ 33'.9$

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Oct.	17th	22h	53.8m	2	49°	2′.1	Midzusima	Midzusima
,,	18th	10	35.2	—	,,	0.5	Kimura	Kimura
,,	,,	11	39.5	2	,,	1.7	{ ,, Midzusima	{ ,, Midzusima
,,	,,	13	10.5	2	,,	1.9	,,	,,
,,	,,	14	41.0	2	,,	1.2	,,	,,
Mean					49°	1′.5		

$\theta = 49^\circ\ 1'.5$
Reduction to 1895.0 = 1.09
,, ,, sea level = 0.00
$\theta = 49^\circ\ 2'.6$

HORIZONTAL INTENSITY (*H*)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflection φ_1	Mean Deflection φ_2	Temp. t_D	Observer	Recorder
Oct. 18th 3h 39m	0.29645	464.60	19°.8C	5.6157 s	19°.9C	6°48′12″.6	15°26′54″.4	19.8C	Midzusima	Midzusima
,, ,, 7 7	0.29632	465.43	19.2	5.6123	19.5	6 48 51 .6	15 27 56 .9	19.0	Kimura	,,
,, ,, 8 48	0.29589	464.44	22.0	5.6220	22.0	6 48 19 .9	15 26 29 .5	22.0	,,	Kimura
,, ,, 12 35	0.29613	462.63	26.2	5.6312	26.5	6 46 37 .7	15 22 59 .0	26.0	Midzusima	,,
,, ,, 16 34	0.29608	463.51	23.3	5.6267	23.8	6 47 31 .9	15 24 57 .3	22.9	,,	Midzusima
Mean	0.29617									

H = 0.29617
Reduction to 1895.0 = 603
,, ,, sea lavel = 000
H = 0.2962…

44. ŌTU.

DECLINATION (δ)

Observations of the East Party, 1895.

Date and Hour. (Mean Local Time.)	δ	Observer	Recorder
Oct. 22nd 8h 16m	4° 12′ 55″	Midzusima	Kimura
,, ,, 9 0	,, 14 27	,,	,,
,, ,, 9 37	,, 15 7	Kimura	Midzusima
,, ,, 10 25	,, 16 59	Midzusima	Kimura
,, ,, 11 24	,, 19 55	Kimura	Midzusima
,, ,, 12 15	,, 21 36	Midzusima	Kimura
,, ,, 13 2	,, 22 48	Kimura	,,
,, ,, 14 17	,, 22 30	,,	,,
,, ,, 15 9	,, 21 21	Midzusima	,,
,, ,, 16 11	,, 19 31	Kimura	,,
,, ,, 17 13	,, 17 58	,,	,,
,, ,, 18 12	,, 17 13	Midzusima	,,
,, ,, 19 16	,, 15 42	,,	,,
,, ,, 20 9	,, 17 23	Kimura	Midzusima
,, ,, 21 26	,, 15 53	Midzusima	Kimura
,, ,, 22 21	,, 16 1	,,	,,
,, ,, 23 25	,, 15 58	Kimura	,,
,, 23rd 0 42	,, 15 17	,,	,,
,, ,, 2 44	,, 15 35	,,	,,
,, ,, 5 7	,, 15 25	,,	,,
,, ,, 6 11	,, 15 28	Midzusima	,,
,, ,, 7 15	,, 13 29	,,	Midzusima
,, ,, 8 12	,, 11 56	,,	,,
,, ,, 9 6	,, 12 8	,,	,,
,, ,, 9 55	,, 14 20	,,	,,
,, ,, 10 54	,, 18 5	,,	,,
,, ,, 11 53	,, 21 37	,,	,,
,, ,, 12 42	,, 23 6	,,	,,
,, ,, 13 32	,, 22 1	Kimura	,,
,, ,, 14 25	,, 20 27	Midzusima	Kimura
,, ,, 15 23	,, 19 20	,,	Midzusima
,, ,, 16 18	,, 17 53	,,	Kimura
,, ,, 17 14	,, 16 18	,,	,,
Mean	4° 16′ 37″		

δ = 4° 16′.62
Reduction to 1895.0 = 0.88
,, ,, sea level = 0.00
δ = 4° 17′.5

DIP (θ)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	Dip	Observer	Recorder
Oct. 22nd 10h 44.1m	2	48° 37.8	Kimura	Midzusima
" " 11 9.9	2	" 38.3	"	"
" " 11 42.5	2	" 30.3	Midzusima	Kimura
" " 12 4.4	—	" 33.4	"	"
" " 13 54.9	—	" 33.6	Kimura	"
" " 16 34.6	—	" 34.4	"	"
" " 17 14.8	—	" 33.5	"	"
" " 18 0.4	—	" 32.8	Midzusima	"
" 23rd 14 15.8	—	" 39.5	"	"
" " 16 31.2	—	" 34.7	"	"
" " 16 57.0	—	" 36.9	Kimura	Midzusima
Mean		48′ 35.0		

$\theta = 48°\ 35.'0$

Reduction to 1895.0 = 1.31

" " sea level = 0.00

$\theta = 48°\ 36.'3$

HORIZONTAL INTENSITY (H)

Observations of the East Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Oct. 22nd 8h 51m	0.29819	464.66	19.5C	s 5.6001	20.2C	6°45′49.″6	15°21′ 2.″8	18.8C	Midzusima	Kimura
" " 9 25	0.29796	464.20	20.6	5.6049	21.3	6 45 37.3	15 20 28.9	20.0	Kimura	Midzusima
" " 19 58	0.29825	464.99	17.0	5.5968	17.4	6 46 4.3	15 21 43.0	16.7	"	"
" 23rd 6 1	0.29819	465.61	15.4	5.5928	15.4	6 46 29.5	15 22 30.5	15.4	Midzusima	Kimura
" " 13 58	0.29875	463.91	21.3	5.5985	21.9	6 44 22.6	15 17 47.1	20.8	"	"
Mean	0.29827									

$H = 0.29827$

Reduction to 1895.0 = 520

" " sea level = 000

$H = 0.29832$

45. MIDONO.

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	25th	16h	30m	4°	24′	41″	Tanakadate	Tanakadate
,,	,,	17	6	,,	25	10	,,	,,
,,	,,	18	12	,,	26	15	,,	,,
,,	,,	18	32	,,	24	3	,,	,,
,,	,,	19	11	,,	22	29	,,	,,
,,	,,	20	19	,,	24	53	,,	,,
,,	,,	21	13	,,	24	9	,,	,,
,,	26th	1	48	,,	21	48	,,	,,
,,	,,	4	10	,,	22	20	,,	,,
,,	,,	7	29	,,	23	13	,,	,,
,,	,,	8	23	,,	23	59	,,	,,
,,	,,	8	59	,,	23	33	,,	,,
,,	,,	9	37	,,	23	36	,,	,,
,,	,,	10	14	,,	24	38	,,	,,
,,	,,	11	4	,,	25	31	,,	,,
,,	,,	11	32	,,	27	25		,,
,,	,,	12	15	,,	27	55	,,	,,
,,	,,	13	6	,,	27	48	,,	,,
,,	,,	14	8	,,	26	16	,,	,,
,,	,,	15	9	,,	25	24	,,	,,
,,	,,	16	6	,,	24	46	,,	,,
Mean				4°	24′	1″		

$\delta = 4^\circ\ 24.02$

Reduction to 1895.0 = 1.16

,, ,, sea level = −0.03

$\delta = 4^\circ\ 25.2$

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ	Observer	Recorder
July	5th	20h	34m	3	49° 48.1	Iwaoka	Tanakadate
,,	6th	6	9	3	,, 50.8	,,	Uziie
Mean					49° 49.5		

$\theta = 49^\circ\ 49.5$

Reduction to 1895.0 = 0.67

,, ,, sea level = −0.07

$\theta = 49^\circ\ 50.1$

HORIZONTAL INTENSITY (*H*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	5th	19h	15m	0.29178	474.15	21.7C	s 5.6496	22.0C	6°59′45.″0	15°58′37.″5	21.4C	Iwaoka	Tanakadate
,,	6	8	8	0.29177	472.90	21.9	5.6568	22.2	6 59 0.0	15 57 32.5	21.6	,,	Turuta
,,	,,	14	14	0.29252	472.25	24.6	5.6548	25.8	6 57 43.8	15 55 1.2	23.4	Uziie	Iwaoka
Mean				0.29202									

$H = 0.29202$

Reduction to 1895.0 = 870

,, ,, sea level = 693

$= 0.29218$

46. YOSIDA.

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	24th	9h	21m	3°	24′	53″	Tanakadate	Tanakadate
,,	,,	9	53	,,	25	14	,,	,,
,,	,,	10	39	,,	27	3	,,	,,
,,	,,	11	51	,,	30	36	,,	,,
,,	,,	12	43	,,	30	23	,,	,,
,,	,,	13	17	,,	30	44	,,	,,
,,	,,	14	22	,,	30	16	,,	,,
,,	,,	15	18	,,	29	14	,,	,,
,,	,,	16	15	,,	28	31	,,	,,
,,	,,	17	15	,,	28	53	,,	,,
,,	,,	18	8	,,	29	6	,,	,,
,,	,,	19	30	,,	29	15	,,	,,
,,	,,	22	32	,,	28	28	,,	,,
,,	25th	4	0	,,	26	59	,,	,,
,,	,,	4	56	,,	27	23	,,	,,
,,	,,	6	45	,,	29	8	,,	,,
,,	,,	7	30	,,	28	6	,,	,,
,,	,,	8	8	,,	25	13	,,	,,
,,	,,	8	32	,,	26	49	,,	,,
,,	,,	8	56	,,	26	56	,,	,,
Mean				3°	28′	38″		

δ = 3° 28′.63

Reduction to 1895.0 = 1 .30

,, ,, sea level = −0.05

δ = 3° 29′.9

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July.	7th	18h	44m	3	49°	11′.2	Iwaoka	Iwaoka
,,	,,	15	53	3	,,	14.5	Tanakadate	,,
,,	,,	23	42	3	,,	15.6	Turuta	,,
Mean					49°	13′.8		

θ = 49° 13′.8

Reduction to 1895.0 = 0.40

,, ,, sea level = −0.08

θ = 49° 14′.1

HORIZONTAL INTENSITY (*H*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections		Temp. t_D	Observer	Recorder
									φ_1	φ_2			
July.	7th	11h	8m	0.29642	470.85	25.1C	s 5.6259	26°.2 C	6°51′17″.5	15°40′27″.5	24°.0 C	Uziie, Turuta	Turuta, Uziie
,,	,,	14	36	0.29701	473.69	22.7	5.6011	23.0	6 52 25 .0	15 42 28 .8	22.4	Iwaoka	Tanakadate
,,	,,	22	19	0.29692	474.83	19.7	5.5970	20.1	6 53 47 .5	15 45 50 .	19.3	Uziie, Turuta	Turuta, Iwaoka
Mean				0.29678									

H = 0.29678

Reduction to 1895.0 = 905

,, ,, sea level = 1067

H = 0.29698

47. UMAGAESI.

Suzugahara, foot of Mt. Huzi (富士山麓字鈴ヶ原 (吉田口))

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	22nd	21h	34m	4°	43′	43″	Tanakadate	Tanakadate
,,	,,	22	40	,,	43	38	,,	,,
,,	23rd	0	30	,,	43	46	,,	,,
,,	,,	6	16	,,	42	41	,,	,,
,,	,,	7	11	,,	41	11	,,	,,
,,	,,	7	47	,,	39	46	,,	,,
,,	,,	8	42	,,	39	17	,,	,,
,,	,,	9	18	,,	38	53	,,	,,
,,	,,	10	4	,,	39	57	,,	,,
,,	,,	11	0	,,	42	7	,,	,,
,,	,,	12	28	,,	45	5	,,	,,
,,	,,	13	8	,,	45	58	,,	,,
,,	,,	13	37	,,	45	55	,,	,,
,,	,,	14	25	,,	45	7	,,	,,
,,	,,	14	29	,,	44	40	,,	,,
,,	,,	16	51	,,	44	0	,,	,,
,,	,,	17	44	,,	44	3	,,	,,
,,	,,	18	43	,,	43	57	,,	,,
,,	,,	19	35	,,	44	4	,,	,,
Mean				4°	43′	0″		

$\delta = 4°\ 43'.0$
Reduction to 1895.0 = 1.11
,, ,, sea level = −0.06
$\delta = 4°\ 44'.1$

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.			Observer	Recorder
July.	8th	20h	17m	3	50°	22′.7	Uziie	Turuta
,,	9th	8	59	3	,,	26.7	Turuta	Uziie
,,	,,	16	59	3	,,	22.7	Iwaoka	Tanakadate
,,	,,	19	6	3	,,	29.1	Tanakadate	Uziie
,,	10th	9	11	3	,,	23.0	,,	,,
Mean					50°	24′.8		

$\theta = 50°\ 24'.8$
Reduction to 1895.0 = 0.59
,, ,, sea level = −0.10
$\theta = 50°\ 25'.3$

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July.	8th	23h	4m	0.28749	476.03	14°.5C	s 5.6800	14°.9C	7° 7′10″.0	16°15′18″.7	14°.2C	Iwaoka Tanakadate	Tanakadate Iwaoka
,,	9th	10	32	0.28821	471.47	23.8	5.6987	25.1	7 3 50.0	16 9 7.5	22.5	Iwaoka	Tanakadate
,,	,,	14	29	0.28866	471.24	23.5	5.7025	27.9	7 2 32.5	16 6 5.0	25.2	Turuta ,,	Iwaoka Tanakadate
Mean				0.28812									

$H = 0.28812$
Reduction to 1895.0 = 1008
,, ,, sea level = 1270
$H = 0.28835$

DIP (θ)
Observations of the West Party, 1893.

(吉田口四合目　小屋前)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 10th 15h 13m	3	51° 13′.3	Turuta	Iwaoka

(吉田口五合五勺目字穴ムロ　岩石ノ上)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 10th 18h 25m	3	45 37′.3	Iwaoka	Turuta

(吉田口六合五勺目字鎌岩　石室ノ上方)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 11th 9h 29m	3	50 28′.9	Tanakadate	Uziie

(吉田口八合目)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 11th 14h 5m	3	60° 52′.1	Uziie	Turuta

48. HUZI.

East side of Syakadake (釋迦ヶ嶽ノ東)

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 11th 19h 28m „ 12th 11 50	— —	59 24′.6 „ 12.5	Iwaoka Turuta	Uziie „
Mean		59 18′.6		

θ = 59° 18′.6
Reduction to 1895.0 = 0.59
„ „ sea level = −0.41
θ = 59° 18′.8

HORIZONTAL INTENSITY (H)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. tv	Mean Deflections φ1	Mean Deflections φ2	Temp. tD	Observer	Recorder
July. 12th 8h 1m „ „ 14 8	0.26142 0.26174	477.32 477.19	9°.1 C 12.4	s 5.9538 5.9487	10°.5 C 13.0	7°53′36″.2 7 52 12.5	18° 6′ 21″.0 18 2 29.0	7°.7 C 11.9	Iwaoka „	Tanakadate Turuta
Mean	0.26158									

H = 0.26158
Reduction to 1895.0 = 1032
„ „ sea level = 4700
H = 0.26215

22 Centimeters above ground (地上二十二糎)

HORIZONTAL INTENSITY (H)
(* *Value deduced from Vibration only by assuming Value of M*)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. tv	Mean Deflections φ1	Mean Deflections φ2	Temp. tD	Observer	Recorder
July. 12th 9h 26m	*0.25574	477.62	10°.9 C	s 6.0143	10°.9 C	..	..	..	Turuta	Uziie

120 Centimeters above ground (地上百二十糎)

HORIZONTAL INTENSITY (H)
(* *Value deduced from Vibration only by assuming Value of M*)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean. Temp.	Time of 1-Vibn.	Temp. tv	Mean Deflections φ1	Mean Deflections φ2	Temp. tD	Observer	Recorder
July. 12th 9h 55m	*0.26114	477.14	12°.2C	s 5.9544	12°.2C	..	..	..	Turuta	Uziie

49. HUZI.

Sainokawara near Kinmeisui (金明水近傍ナル賽ノ河原)

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 12th 17h 3.1m	3	52° 41′.7	Iwaoka	Uziie

$\theta = 52° \; 41'.7$
Reduction to 1895.0 = 0.59
" " sea level = −0.40
$\theta = 52° \; 41'.9$

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 12th 19h 16m	*0.29247	478.50	8°.8C	5.6188s	8°.8C	..	..	..	Iwaoka	Uziie
" " 19 50	*0.29297	478.40	8.9	5.6151	8.9	..	..	..	{ Uziie Iwaoka	{ Iwaoka Turuta
Mean	0.29272									

H = 0.29272
Reduction to 1895.0 = 1032
" " sea level = 4536
H = 0.29328

120 Centimeters above ground (地上百二十糎)

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 13th 6h 26m	*0.29265	478.68	7.5C	5.6160s	7°.5C	..	..	..	Iwaoka	Tanakadate

22 Centimeters above ground (地上二十二糎)

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	*H*	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 13th 6h 40m	0.29101	478.53	8°.4C	5.6324s	8.4C	..	..		Iwaoka	Tanakadate

50. HUZI.

Sainokawara near Ginmeisui (銀明水近傍ナル賽ノ河原)

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 13th 9h 3m	3	59° 14′.3	Uziie	Turuta
Mean				

$\theta = 59° \; 14'.3$
Reduction to 1895.0 = 0.59
" " sea level = −0.41
$\theta = 59° \; 14'.5$

HORIZONTAL INTENSITY (H)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 13th 16^h 10^m	0.24590	476.99	14.9 C	^{s} 6.1373	15.0 C	8 21′50″.0	19 11′50″.0	14.9 C	Iwaoka	Turuta

$H=$ 0.24590
Reduction to 1895.0 = 1030
" " sea level = 4687
$H=$ 0.24647

51. HUZI.

Bottom of Crater (人穴ノ奥)

DIP. (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 13th 12^h 2^m	3	47° 42.′2	Iwaoka	Tanakadate

$\theta=$ 47 42.′2
Reduction to 1895.0 = 0.59
" " sea level = −0.39
$\theta=$ 47 42.′4

HORIZONTAL INTENSITY (H)
(* *Value deduced from Vibration only by assuming Value of* (M))
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 13th 12^h 48^m	*0.31257	476.66	13.5 C	^{s} 5.4298	13.5 C	..	..	..	Turuta	Tanakadate
" " " 59	*0.31099	476.73	13.3	5.4428	13.3	..	..	..	Iwaoka	..
.. " 13 8	*0.31143	476.36	14.3	5.4410	14.3	..	..	..	..	..
Mean	0.31166									

$H=$ 0.31166
Reduction to 1895.0 = 1030
" " sea level = 4485
$H=$ 0.31221

52. MURAYAMA.

Aza Arasinotaira (字嵐ノ平)

DECLINATION (δ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	19th	12^h	46^m	3	7′	49″	Tanakadate	Tanakadate
..	..	14	20	"	7	27	..	..
..	"	14	47	..	6	56	..	..
"	..	15	42	"	5	20	..	..
..	..	16	47	"	4	55	..	..
"	..	18	5	"	5	12	..	..
"	..	18	59	..	5	8	..	..
"	..	21	16	..	5	14	..	..
..	"	22	39	..	4	59	..	..
..	20th	5	57	..	4	17	..	..
..	..	7	50	"	2	7	..	..
..	..	8	42	..	1	13	..	..
"	..	9	33	"	1	9	..	..
"	"	10	23	..	2	9	..	"
..	"	11	30	..	4	50	"	..
"	..	1	1	..	6	49	..	"
Mean				3°	4′	28″		

$\delta=$ 3° 4.′47
Reduction to 1895.0 = 1.03
" " sea level = −0.03
$\delta=$ 3° 5.′5

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	15th	9h	37m	海	48	58′.9	Uziie	Uziie
,,	,,	15	23	3	,,	48.9	Iwaoka	Turuta
,,	,,	17	8	3	,,	57.5	Turuta	Iwaoka
Mean					48	55′.1		

θ = 48 55′.1
Reduction to 1895.0 = 0.73
,, ,, sea level = −0.03
θ = 48° 55′.8

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	15th	3	10m	0.30571	471.06	24.4C	5.5386s	24.3C	6 37′16″.3	15 5′36″.2	24.5C	Turuta	Iwaoka
,,	,,	8	30	0.30624	469.57	24.3	5.5430	24.6	6 37 26.3	15 9 13.7	24.1	Uziie	Tanakadate
,,	,,	14	40	0.30563	469.89	25.5	5.5468	25.7	6 37 19.0	15 7 9.3	25.4	Iwaoka	Turuta
,,	,,	21	21	0.30558	471.69	22.5	5.5361	22.5	6 38 41.3	15 9 53.8	22.6	Turuta Uziie	Iwaoka ,,
Mean				0.30579									

H = 0.30579
Reduction to 1895.0 = 990
,, ,, sea level = 630
H = 0.30595

53. HIROMIBARA.

Kamiidemura Koaza Warabidaira (上井出村小字蕨平)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct	20th	23h	24m	3	16′	43″	Tanakadate	Tanakadate
,,	,,	23	31	,,	17	3	,,	,,
,,	21st	0	21	,,	17	3	,,	,,
,,	,,	5	51	,,	16	29	,,	,,
,,	,,	7	27	,,	15	17	,,	,,
,,	,,	8	22	,,	13	24	,,	,,
,,	,,	9	7	,,	12	53	,,	,,
,,	,,	9	58	,,	12	37	,,	,,
,,	,,	10	30	,,	13	3	,,	,,
,,	,,	11	12	,,	14	44	,,	,,
,,	,,	12	14	,,	17	41	,,	,,
,,	,,	13	19	,,	18	19	,,	,,
,,	,,	14	6	,,	18	26	,,	,,
,,	,,	14	17	,,	18	26	,,	,,
,,	,,	15	22	,,	17	48	,,	,,
,,	,,	16	18	,,	17	19	,,	,,
,,	,,	18	5	,,	17	7	,,	,,
,,	,,	18	57	,,	17	28	,,	,,
,,	,,	21	14	,,	17	10	,,	,,
,,	,,	23	10	,,	16	48	,,	,,
Mean				3	16′	35″		

δ = 3 16′.58
Reduction to 1895.0 = 1.08
,, ,, sea level = −0.05
δ = 3 17′.6

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 16th 15h 41m	3	49° 14'.7	Tanakadate	Tanakadate
,, 17th 7 10	3	,, 16.7	Uziie	Turuta
,, ,, 20 48	3	,, 12.8	Tanakadate	Uziie
Mean		49° 14'.7		

θ = 49° 14'.7

Reduction to 1895.0 = 0.58

,, ,, sea level = −0.08

θ = 49° 15'.2

HORIZONTAL INTENSITY (*H*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 16th 17h 34m	0.29784	469.20	28°.3C	s 5.6268	30°.3C	6°47'45".6	15°31'40".0	26°.3C	Iwaoka	Tanakadate
,, ,, 22 1	0.29734	470.86	24.1	5.6175	24.1	6 49 12.5	15 34 41.3	24.1	Turuta	Uziie
,, 17th 8 39	0.29725	468.46	29.0	5.6321	28.6	6 46 56.3	15 29 20.0	29.4	,,	Iwaoka
Mean	0.29748									

H = 0.29748

Reduction to 1895.0 = 1052

,, ,, sea level = 920

H = 0.29768

54. HIROMIBARA.

Down Uzuragawa about 500 meters west (下鶉小屋)

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 17th 17h 14m	3	48° 49'.9	Turuta	Uziie

θ = 48° 49'.9

Reduction to 1895.0 = 0.58

,, ,, sea level = −0.08

θ = 48° 50'.4

HORIZONTAB INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 17th 12h 6m	*0.29681	468.79	29.7C	s 5.6191	29°.7C	..	..	..	Uziie	Turuta

H = 0.29681

Reduction to 1895.0 = 1052

,, ,, sea level = 870

H = 0.29700

55. HIROMIBARA.

Up Uzuragoya about 800 meters east (上鶉小屋)

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 17th 18h 26m	3	49° 39!4	Iwaoka	Tanakadate

$\theta = 49°$ 39!4
Reduction to 1895.0 = 0.58
" " sea level = −0.09
$\theta = 49°$ 39!9

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 17th 14h 45m	0.29888	468.55	31°1 C	s 5.6177	31°5 C	6°45′35″	15°27′11″3	30°9 C	Tanakadate	Tanakadate
" " 19 1	*0.29946	471.09	22.8	5.5801	22.8	..	..	..	Iwaoka	..
Mean	0.29917									

$H =$ 0.29917
Reduction to 1895.0 = 1052
" " sea level = 983
$H =$ 0.29937

56. MITUIKE.

First Cave Hitoanamura (人穴村第一洞)

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 18th 13h 50m	3	40° 4!1	Turuta / Uzue	Tanakadate

$\theta = 40°$ 4!1
Reduction to 1895.0 = 0.44
" " sea level = −0.09
$\theta = 40°$ 4!5

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 18th 12h 17m	*0.33965	472.33	19°2 C	s 5.2322	19°2 C	..	..	..	Iwaoka	Tanakadate
" " 12 37	*0.34013	472.43	18.9	5.2279	18.9	..	..	..	..	..
Mean	0.33989									

$H =$ 0.33989
Reduction to 1895.0 = 1064
" " sea level = 1033
$H =$ 0.34010

57. MITUIKE CAVE.
Second Cave Hitoanamura (人穴村第二洞)

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 18th 16h 22m	3	48 17.7	Tanakadate Iwaoka	Turuta

$\theta = 48°$ 17.7
Reduction to 1895.0 = 0.44
" " sea level = −0.09
$\theta = 48°$ 18.1

HORIZONTAL INTENSITY (H)
(* *Value deduced from Vibration only by assuming Value of M*)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^s.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 18th 15h 20m	*0.29839	473.05	17.4C	5.5777	17.4C	..	..	..	Iwaoka	Tanakadate

$H = 0.29839$
Reduction to 1895.0 = 1064
" " sea level = 1033
$H = 0.29860$

58. FRONT OF MITUIKE CAVE.
Hitoanamura (人 穴 村)

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 18th 20h 13m	3	47° 39.4	Turuta	Iwaoka

$\theta = 47°$ 39.4
Reduction to 1895.0 = 0.44
" " sea level = −0.09
$\theta = 47°$ 39.8

HORIZONTAL INTENSITY (H)
(* *Value deduced from Vibration only by assuming Value of M*)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^s.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 18th 18h 50m	*0.29088	471.31	22.2C	5.6601	22.3C	..	..	..	Iwaoka	Turuta

$H = 0.29088$
Reduction to 1895.0 = 1064
" " sea level = 1033
$H = 0.29109$

59. FRONT OF HITOANA.

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 19th 9h 22m	3	46 20.4	Turuta	Uziie

$\theta = 46°$ 20.4
Reduction to 1895.0 = 0.44
" " sea level = −0.08
$\theta = 46°$ 20.8

HORIZONTAL INTENSITY (H).

(* *Value deduced from Vibration only by assuming Value of M*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 19th 8h 7m	*0.29484	470.83	23.6C	s 5.6314	23.6C	..	..	..	Uziie	Tanakadate
.. 18	*0.29250	470.76	23.8	5.6178	23.8	..	..	..	Tanakadate	Turuta
Mean	0.29367									

$H=$ 0.29367

Reductions to 1895.0 = 1656

" " sea level = 877

= 0.29386

60 ITIMAIIWA IN HITOANA

(人穴内一枚岩)

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 19th 12h 0m	3	46° 38.3	Tanakadate Turuta	Uziie.

$\theta=46$ 38.3

Reduction to 1895.0 = 0.44

" " sea level = 0.08

$\theta=46$ 38.7

HORIZONTAL INTENSITY (H).

(* *Value deduced from Vibration only by assuming Value of M*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 19th 10h 58m	*0.26107	474.23	13.6C	s 5.95567	13.6C	..	..	..	Turuta	Tanakadate

$H=$ 0.26107

Reduction to 1895.0 = 1056

" " sea level = 877

$H=$ 0.26126

61 FRONT OF HITOANA

DIP (θ)

Observations of the West Party, 1893.

Date and Hour Mean Local Time.	Needle No.	θ	Observer	Recorder
July 19th 15h 25m	3	42 14.5	Uziie Turuta	Tanakadate

$\theta=42$ 14.5

Reduction to 1895.0 = 0.44

" " sea level = 0.08

$\theta=42$ 14.9

HORIZONTAL INTENSITY. (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 19th 14h 12m	*0.31584	474.41	13.1C	s 5.4133	13.1C	..	..	..	Tanakadate	Turuta
.. .. 14 22	*0.31564	474.69	12.3	5.4133	12.3	..	..	..	Turuta	Tanakadate
Mean	0.31574									

$H=$ 0.31574

Reduction to 1895.0 = 1056

" " sea level = 877

$H=$ 0.31593

62. ŌMIYA

Nisihatikōzimura Sanbonmatu (西八小路村三本松)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	18th	5h	30m	4°	19′	34″	Tanakadate	Tanakadate
,,	,,	7	7	,,	20	25	,,	,,
,,	,,	8	11	,,	19	16	,,	,,
,,	,,	8	53	,,	18	50	,,	,,
,,	,,	9	49	,,	18	56	,,	,,
,,	,,	10	30	,,	19	57	,,	,,
,,	,,	11	30	,,	21	49	,,	,,
,,	,,	12	39	,,	22	46	,,	,,
,,	,,	13	28	,,	23	30	,,	,,
,,	,,	14	34	,,	23	32	,,	,,
,,	,,	15	41	,,	21	28	,,	,,
,,	,,	16	47	,,	22	2	,,	,,
,,	,,	18	0	,,	21	22	,,	,,
,,	,,	18	59	,,	21	26	,,	,,
,,	,,	20	21	,,	21	57	,,	,,
,,	19th	0	10	,,	20	55	,,	,,
,,	,,	6	43	,,	20	52	,,	,,
,,	,,	7	40	,,	21	53	,,	,,
Mean				4°	21′	32″		

$\delta = 4°\ 21'.53$
Reduction to 1895.0 = 1.06
,, ,, sea level = −0.01
$\delta = 4°\ 22'.6$

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July.	26th	10h	33m	3	48	33.6	Turuta	Uziie
,,	,,	14	42	3	,,	28.4	Iwaoka	Tanakadate
,,	,,	19	54	3	,,	40.8	Uziie	Turuta
,,	,,	23	48	3	,,	34.7	Tanakadate	Uziie
Mean					48°	34.4		

$\theta = 48°\ 34'.4$
Reduction to 1895.0 = 0.73
,, ,, sea level = 0.01
$\theta = 48°\ 35.1$

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July.	26th	8h	18m	0.30234	467.19	31.3C	5.5924 s	31.0C	6°39′28″.8	15°12′45″.0	31.7C	Turuta / Uziie	Uziie / Turuta
,,	,,	13	33	0.30331	468.93	30.2	5.5747	30.9	6 39 58.8	15 13 55.0	29.5	Iwaoka	Tanakadate
,,	,,	22	3	0.30223	469.56	25.5	5.5796	25.5	6 41 30.6	15 16 58.8	25.4	Tanakadate / Turuta	Turuta / Tanakadate
Mean				0.30263									

63. NUMAZU.

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	26th	20^{h}	45^{m}	4	25′	31″	Tanakadate	Tanakadate
,,	,,	21	34	,,	25	24	,,	,,
,,	,,	22	30	,,	23	17	,,	,,
,,	27th	0	16	,,	24	30	,,	,,
,,	,,	2	8	,,	24	24	,,	,,
,,	,,	4	43	,,	23	48	,,	,,
,,	,,	5	55	,,	23	36	,,	,,
,,	,,	7	22	,,	25	28	,,	,,
,,	,,	7	49	,,	24	11	,,	,,
,,	,,	8	30	,,	23	41	,,	,,
,,	,,	9	11	,,	23	57	,,	,,
,,	,,	10	15	,,	25	1	,,	,,
,,	,,	11	9	,,	25	59	,,	,,
,,	,,	12	9	,,	26	22	,,	,,
,,	,,	12	56	,,	25	8	,,	,,
,,	,,	14	1	,,	24	7	,,	,,
,,	,,	15	21	,,	23	8	,,	,,
,,	,,	16	17	,,	23	53	,,	,,
,,	,,	16	51	,,	24	28	,,	,,
,,	,,	18	14	,,	25	14	,,	,,
,,	,,	18	36	,,	25	25	,,	,,
Mean				4	24′	37″		

$\delta = 4 \quad 24'.62$
Reduction to 1895.0 = 0.96
,, ,, sea level = 0.00
$\delta = 4 \quad 25'.6$

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Juyl.	21st	17^{h}	13^{m}	3	48	19′.2	Turuta	Iwaoka
,,	,,	19	5	3	,,	21.6	Uziie	Uziie
,,	22nd	7	41	3	,,	25.4	Noda	Iwaoka
Mean					48	22′.1		

$\theta = 48 \quad 22'.1$
Reduction to 1895.0 = 0.87
,, ,, sea level = 0.00
$\theta = 48 \quad 23'.0$

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_0	Observer	R corder
July.	21st	16^{h}	11^{m}	0.30054	468.07	30.6C	$\overset{s}{5.6058}$	31.5C	6 12′ 6″.3	15 17′31″.1	29.8C	Turuta	Iwaoka
,,	,,	21	56	0.30184	467.93	24.8	5.5927	24.9	6 42 8.8	15 21 3.8	24.8	,,	{ Tanakadate Iwaoka
,,	,,	9	13	0.30059	467.96	32.0	5.6045	31.9	6 41 48.8	15 17 8.8	32.1	Tanakadate	,,
Mean				0.30099									

$H = 0.30099$
Reduction to 1895.0 = 943
,, ,, sea level = 000
$H = 0.30408$

64. SIMIZU.

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	16th	10h	49m	4	9′	9″	Tanakadate	Tanakadate
,,	,,	11	40	,,	10	4	,,	,,
,,	,,	12	26	,,	11	45	,,	,,
,,	,,	13	22	,,	12	19	,,	,,
,,	,,	14	6	,,	12	26	,,	,,
,,	,,	15	16	,,	11	49	,,	,,
,,	,,	16	27	,,	10	59	,,	,,
,,	,,	17	43	,,	11	0	,,	,,
,,	,,	18	31	,,	10	44	,,	,,
,,	,,	19	49	,,	10	14	,,	,,
,,	,,	22	48	,,	9	46	,,	,,
,,	17th	1	24	,,	9	5	,,	,,
,,	,,	6	7	,,	9	55	,,	,,
,,	,,	6	47	,,	9	30	,,	,,
,,	,,	7	42	,,	8	37	,,	,,
,,	,,	8	39	,,	8	4	,,	,,
,,	,,	9	39	,,	6	55	,,	,,
,,	,,	10	8	,,	7	9	,,	,,
,,	,,	10	48	,,	8	47	,,	,,
,,	,,	11	39	,,	12	11	,,	,,
,,	,,	12	34	,,	13	22	,,	,,
,,	,,	13	39	,,	13	37	,,	,,
,,	,,	14	32	,,	12	57	,,	,,
Mean				4	10′	28″		

$\delta = 4°\ 10'.47$

Reduction to 1895.0 = 0'.96

,, ,, sea level = 0.00

$\delta = 4°\ 11'.4$

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ	Observer	Recorder
July.	22nd	20h	15m	3	48° 34'.7	Iwaoka	Uziie
,,	23rd	8	12	3	,, 30.0	Noda	Tanakadate
,,	,,	13	16	3	,, 33.6	Iwaoka	Uziie
,,	,,	16	17	3	,, 31.4	Noda	Turuta
Mean					48° 32'.4		

$\theta = 48°\ 32'.4$

Reduction to 1895.0 = 0.72

,, ,, sea level = 0.00

$\theta = 48°\ 33'.1$

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July.	22nd	2h	22m	0.30161	470.59	27.2 C	5.5802 s	27.5 C	6° 43′ 8″.8	15° 26′ 30″.0	26.9 C	Iwaoka / Uziie	Uziie / Iwaoka
,,	23	9	19	0.30086	466.81	32.0	5.6094	32.2	6 41 13.8	15 16 48.8	31.8	,,	Noda
,,	,,	14	57	0.30073	466.21	32.6	5.6151	33.6	6 40 48.8	15 15 30.0	31.9	Turuta	,,
,,	,,	22	5	0.30249	470.11	27.0	5.5743	27.2	6 42 16.3	15 19 42.5	26.8	Uziie	Turuta
Mean				0.30142									

$H = 0.30142$

Reduction to 1895.0 = 1054

,, ,, sea level = 000

$H = 0.30153$

65. NISINOTO.

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	13th	9h	20m	4°	19′	46″	Tanakadate	Tanakadate
,,	,,	9	57	,,	19	35	,,	,,
,,	,,	10	52	,,	21	50	,,	,,
,,	,,	11	38	,,	24	26	,,	,,
,,	,,	12	22	,,	25	5	,,	,,
,,	,,	13	5	,,	25	11	,,	,,
,,	,,	14	5	,,	25	13	,,	,,
,,	,,	15	36	,,	25	1	,,	,,
,,	,,	16	16	,,	23	39	,,	,,
,,	,,	17	14	,,	23	2	,,	,,
,,	,,	18	19	,,	23	53	,,	,,
,,	,,	19	17	,,	22	45	,,	,,
,,	,,	20	17	,,	22	30	,,	,,
,,	,,	21	22	,,	22	2	,,	,,
,,	14th	0	28	,,	22	23	,,	,,
,,	,,	3	37	,,	22	28	,,	,,
,,	,,	6	25	,,	23	20	,,	,,
,,	,,	6	53	,,	22	37	,,	,,
,,	,,	7	35	,,	21	18	,,	,,
,,	,,	8	13	,,	20	55	,,	,,
Mean				4°	22′	53″		

	δ =	4° 22′.88
Reduction to	1895.0 =	1.12
,, ,,	sea level =	−0.01
	δ =	4° 24′.0

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July.	26th	9h	55m	3	48°	45′.0	Uziie	Tanakadate
,,	,,	15	19	3	,,	35.9	Turuta	Uziie
,,	,,	22	3	3	,,	39.6	Tanakadate	Turuta
Mean					48°	40′.2		

	θ =	48° 40′.2
Reduction to	1895.0 =	0.00
,, ,,	sea level =	−0.02
	θ =	48° 40′.2

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 26th 13h 37m	0.30052	465.49	31.2C	5.6221 s	32.2	6°41′18″.8	15°17′51″.3	30.1C	Uziie	Noda
,, ,, 20 26	0.30002	469.01	24.3	5.6036	24.6	6 41 5.0	15 22 58.8	24.1	Turuta	Tanakadate
Mean	0.30027									

	H =	0.30027
Reduction to	1895.0 =	1293
,, ,,	sea level =	176
	H =	0.30042

DIP (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 27th 6h 8m	3	48° 38′.4	Uziie	Noda
,, ,, 8 0	3	,, 34.2	Iwaoka	Turuta
Mean		48 36′.3		

θ = 48° 35′.30
Reduction to 1895.0 = 0.00
,, ,, sea level = 0.02
θ = 48° 36′.3

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by Assuming Value of M.*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July. 27th 7h 24m	*0.30041	460.01	24.4C	5s.5832	24.4C	..	..	..	Uziie	Turuta

H = 0.30041
Reduction to 1895.0 = 1290
,, ,, sea level = 176
H = 0.30056

66. OKAZAKI.

No 10 Ōaza Hane Aza Okuyama (大字羽根字奥山十番地)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	3rd	22h	53m	4	32′	30″	Tanakadate	Tanakadate
,,	4th	2	27	,,	33	29	,,	,,
,,	,,	5	49	,,	33	31	,,	,,
,,	,,	7	6	,,	32	44	,,	,,
,,	,,	7	54	,,	32	40	,,	,,
,,	,,	8	45	,,	32	49	,,	,,
,,	,,	9	44	,,	32	8	,,	,,
,,	,,	10	35	,,	32	49	,,	,,
,,	,,	11	33	,,	33	29	,,	,,
,,	,,	13	15	,,	35	5	,,	,,
,,	,,	13	47	,,	35	15	,,	,,
,,	,,	14	33	,,	35	9	,,	,,
,,	,,	15	37	,,	34	49	,,	,,
,,	,,	16	48	,,	33	44	,,	,,
,,	,,	17	44	,,	33	38	,,	,,
,,	,,	19	3	,,	33	36	,,	,,
Mean				4	33′	28″		

δ = 4 33′.47
Reduction to 1895.0 = 1.12
,, ,, sea level = 0.00
δ = 4 34′.6

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	15th	7h	50m	4	27′	30″	Tanakadate	Tanakadate
,,	,,	8	22	,,	26	47	,,	,,
,,	,,	8	55	,,	26	14	,,	,,
,,		9	21	,,	26	5	,,	,,
,,	,,	9	53	,,	26	45	,,	,,
,,	,,	10	44	,,	27	35	,,	,,
,,	,,	11	19	,,	28	20	,,	,,
Mean				4	27′	53″		

δ = 4 27′.88
Reduction to 1895.0 = 1.09
,, ,, sea level = −0.00
δ = 4 28′.9

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 28th 13h 22m	3	48° 35.0	Uziie	Noda
,, ,, 20 7	3	,, 32.7	,,	,,
,, 29th 7 45	3	,, 32.0	Turuta	,,
Mean		48 33.2		

θ = 48° 33.2
Reduction to 1895.0 = 0.43
,, ,, sea level = −0.01
θ = 48 32.8

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 28th 11h 46m	0.30108	464.49	35.1C	s 5.62178	35.9C	6° 39′ 3.8	15° 11′ 31.3	34.2C	Iwaoka Tanakadate	Tanakadate Turuta
,, ,, 22 22	0.30111	469.15	22.0	5.5899	22.0	6 42 58.8	15 20 43.8	22.0	Uziie Tanakadate	Uziie
,, 29th 9 32	0.30064	466.11	30.6	5.6114	30.6	6 40 31.3	15 14 36.3	30.6	Turuta	Noda
Mean	0.30094									

H = 0.30094
Reduction to 1895.0 = 1518
,, ,, sea level = 63
H = 0.30110

67. KŌWA.

Goryōti. (山ノ上御料地)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 27th 16h 57m	4° 34′ 40″	Tanakadate	Tanakadate
,, ,, 17 25	,, 34 40	,,	,,
,, ,, 18 46	,, 35 3	,,	,,
,, ,, 19 24	,, 34 40	,,	,,
,, ,, 20 53	,, 34 33	,,	,,
,, ,, 22 9	,, 34 41	,,	,,
,, 28th 0 37	,, 34 21	,,	,,
,, ,, 6 1	,, 31 33	,,	,,
,, ,, 7 9	,, 31 22	,,	,,
,, ,, 8 35	,, 32 15	,,	,,
,, ,, 8 53	,, 35 4	,,	,,
,, ,, 10 52	,, 35 22	,,	,,
,, ,, 11 37	,, 35 4	,,	,,
,, ,, 12 32	,, 36 56	,,	,,
,, ,, 13 26	,, 37 31	,,	,,
,, ,, 14 8	,, 36 53	,,	,,
,, ,, 15 15	,, 36 27	,,	,,
,, ,, 16 5	,, 33 27	,,	,,
,, ,, 17 25	,, 31 42	,,	,,
,, ,, 17 56	,, 32 11	,,	,,
,, ,, 19 45	,, 31 6	,,	,,
,, ,, 20 11	,, 31 56	,,	,,
,, 29th 1 30	,, 30 40	,,	,,
,, ,, 5 50	,, 29 25	,,	,,
,, ,, 7 45	,, 28 50	,,	,,
Mean	4° 34′ 22″		

δ = 4 34.37
Reduction to 1895.0 = 1.07
,, ,, sea level = 0.00
δ = 4 35.4

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 29th 21h 54m	3	48° 27!5	Turuta	Uziie
,, 30th 10 0	3	,, 25.9	Uziie	Tanakadate
,, ,, 14 36	3	,, 20.1	Iwaoka	Turuta
,, ,, 21 11		,, 22.0	..	.
Mean		48° 23!9		

θ = 48° 23!9
Reduction to 1895.0 = −0.43
,, ,, sea level = 0.00
θ = 48° 23!5

HORIZONTAL INTENSITY (H)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 29th 0h 14m	0.30252	468.42	24.4C	s 5.5812	24.6C	6°40′28!8	15°14′55!0	24°3C	{ Turuta Uziie	{ Uziie Turuta
,, 30th 8 51	0.30212	466.04	30.8	5.6020	30.9	6 38 46.3	15 10 56.3	30.7	,,	Tanakadate
,, ,, 13 23	0.30232	464.77	32.9	5.6096	33.8	6 37 41.3	15 8 33.1	32.1	Iwaoka	Turuta
,, ,, 15 37	0.30308	464.71	31.9	5.6024	32.8	6 37 9.4	15 8 10.0	31.0	Turuta	Iwaoka
,, ,, 20 29	0.30192	467.67	26.2	5.5944	26.6	6 40 21.3	15 14 12.5	25.8	{ ,, Tanakadate	{ Tanakadate Turuta
Mean	0.30239									

H = 0.30239
Reduction to 1895.0 = 1582
,, ,, sea level = 0000
H = 0.30255

68. NARUMI.

Aza Ikenoue embankment (字池ノ上堤防)

DECLINATION (δ)
Observation of the West Party, 1893.

Date and Hour (Mean Local Time.)				Observer	Recorder
Oct. 2nd 14h 45m	4	40′	31″	Tanakadate	Tanakadate
,, ,, 15 48	,,	38	51	,,	,,
,, ,, 17 6	,,	38	18	,,	,,
,, ,, 18 12	,,	38	44	,,	,,
,, ,, 19 49	,,	38	5	,,	,,
,, 3rd 1 31	,,	36	12	,,	,,
,, ,, 6 8	,,	38	58	,,	,,
,, ,, 6 32	,,	40	16	,,	,,
,, ,, 7 2	,,	38	33	,,	,,
,, ,, 7 32	,,	37	40	,,	,,
,, 2nd 8 6	,,	38	53	,,	,,
,, ,, 8 44	,,	39	5	,,	,,
,, ,, 9 47	,,	37	46	,,	,,
,, ,, 10 44	,,	39	7	,,	,,
,, ,, 11 37	,,	40	35	,,	,,
,, ,, 12 36	,,	40	58	,,	,,
,, ,, 13 33	,,	40	44	,,	,,
,, ,, 14 19	,,	40	0	,,	,,
,, ,, 14 36	,,	40	31	,,	,,
,, ,, 14 47	,,	40	36	,,	,,
Mean	4°	38′	32″		

δ = 4° 38!53
Reduction to 1895.0 = 1.16
,, ,, sea level = 0.00
δ = 4° 39!7

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 31st 15h 35m	3	48° 45.9	Tanakadate	Uziie
,, ,, 21 43m	—	,, 47.6	Iwaoka	Iwaoka
Aug. 1st 9 28	3	,, 45.3	,,	Tanakadate
Mean		48° 46.3		

θ = 48° 46.3
Reduction to 1895.0 = −0.71
,, ,, sea level = 0.00
θ = 48° 45.6

HORIZONTAL INTENSITY (H)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 31st 13h 52m	0.30063	464.53	37.5 C	s 5.6254	37.8 C	6° 37′ 56.3″	15° 6′ 43.3″	37.1 C	Uziie	Tanakadate
,, ,, 19 57	0.30163	455.78	27.7	5.6082	28.0	6 39 48.8	15 14 8.8	27.5	Iwaoka	Turuta
Aug. 1st 8 12	0.30124	465.38	31.0	5.6134	30.9	6 39 18.1	15 12 10.6	31.1	Tanakadate	Iwaoka
Mean	0.30117									

H = 0.30117
Reduction to 1895.0 = 1608
,, ,, sea level = 000
H = 0.30133

69. Nagoya.

In tent near Magnetic Observatory in Meteorological Observatory

(測候所内磁力観測所傍ノ天幕内)

DECLINATION (δ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)		Observer	Recorder
Sept. 16th 10h 21m	4° 40′ 35″	Tanakadate	Tanakadate
,, ,, 11 14	,, 41 37	,,	,,
,, ,, 11 31	,, 42 44	,,	,,
,, ,, 12 25	,, 43 42	,,	,,
,, ,, 13 13	,, 43 11	,,	,,
,, ,, 14 22	,, 42 39	,,	,,
,, ,, 15 42	,, 42 23	,,	,,
,, ,, 16 19	,, 42 31	,,	,,
,, ,, 17 10	,, 41 34	,,	,,
,, ,, 18 11	,, 41 24	,,	,,
,, ,, 19 18	,, 41 34	,,	,,
,, ,, 20 57	,, 41 48	,,	,,
,, ,, 22 10	,, 41 50	,,	,,
,, 17th 2 58	,, 40 19	,,	,,
,, ,, 5 35	,, 39 26	,,	,,
,, ,, 7 29	,, 39 20	,,	,,
,, ,, 7 50	,, 38 50	,,	,,
,, ,, 9 2	,, 40 35	,,	,,
,, ,, 10 20	,, 42 25	,,	,,
,, ,, 11 29	,, 44 39	,,	,,
,, ,, 20 50	,, 55 10	,,	,,
,, ,, 22 49	,, 55 13	,,	,,
Mean	4 41′ 15″		

δ = 4 41.25
Reduction to 1895.0 = 1.27
,, ,, sea level = 0.00
δ = 4° 42.5

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	6th	10h	40m	4°	41′	18″	Tanakadate	Sano
,,	,,	11	59	,,	44	58	,,	,,
,,	,,	12	29	,,	46	23	,,	,,
,,	,,	13	9	,,	46	47	,,	,,
,,	,,	14	47	,,	45	52	,,	,,
,,	,,	16	39	,,	43	27	,,	Tanakadate
,,	,,	18	17	,,	43	46	,,	Sano
,,	,,	19	40	,,	43	56	,,	,,
,,	,,	22	25	,,	43	55	,,	,,
,,	7th	0	31	,,	43	42	Sano	,,
,,	,,	4	37	,,	43	2	,,	,,
,,	,,	6	7	,,	43	7	,,	,,
,,	,,	7	19	,,	42	13	Tanakadate	,,
,,	,,	8	9	,,	41	0	,,	,,
,,	,,	10	31	,,	41	3	,,	Tanakadate
,,	,,	11	43	,,	47	21	,,	,,
,,	,,	13	37	,,	47	50	,,	,,
,,	,,	15	43	,,	45	40	,,	Sano
,,	,,	17	32	,,	43	42	,,	,,
Mean				4	43′	43″		

δ = 4° 43′.72
Reduction to 1895.0 = −1.73
,, ,, sea level = 0.00
δ = 4° 42′.0

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	1st	16h	23m	3	48°	46′.8	Turuta	Iwaoka
,,	,,	21	55	3	,,	46.0	Uziie	Uziie
,,	2nd	9	46	3	,,	48.3	Iwaoka	,,
Mean					48	47′.0		

θ = 48° 47′.0
Reduction to 1895.0 = −0.85
,, ,, sea level = 0.00
θ = 48° 46′.1

(In observatory)

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	2nd	14h	50m	3	48	52′.6	Turuta	Uziie
,,	,,	22	7	—	,,	54.6	,,	Turuta
Mean					48	53′.6		

θ = 48° 53′.6
Reduction to 1895.0 = −0.85
,, ,, sea level = 0.00
θ = 48° 52′.7

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Oct.	6th	16h	39m	2	48	42′.6	Tanakadate	Tanakadate
,,	,,	22	0	2	,,	40.7	Sano	Sano
,,	,,	23	33	2	,,	42.5	Tanakadate	Tanakadate
Mean					48°	41′.9		

θ = 48° 41′.9
Reduction to 1895.0 = 1.06
,, ,, sea level = 0.00
θ = 48° 43′.0

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_n	Observer	Recorder
Aug. 1st 15^h 3^m	0.30182	463.71	33.4C	$\overset{s}{5.6220}$	35.2C	6 37′51″.3	15 9′10″.0	31.6C	Iwaoka	Turuta
,, ,, 20 3	0.30157	466.58	25.7	5.6034	25.8	6 40 11.3	15 14 22.5	25.6	Uziie	Tanakadate
,, 2nd 8 6	0.30106	465.63	29.1	5.6144	29.2	6 39 38.8	15 12 33.8	28.9	Iwaoka	Uziie
Mean	0.30148									

$H=$ 0.30148
Reduction to 1895.0 = 1604
,, ,, sea level = 000
$H=$ 0.30164

Observatory.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_n	Observer	Recorder
Aug. 2nd 20^h 30^m	0.30108	464.38	30.3C	$\overset{s}{5.6218}$	30.4C	6 38′27″.5	15 9′43″.7	30.1C	Tanakadate	Turuta
,, 3rd 8 45	0.30106	464.45	28.2	5.6210	28.1	6 38 45.0	15 10 45.0	28.3	{ Uziie ,,	{ Tanakadate Turuta
Mean	0.30107									

$H=$ 0.30107
Reduction to 1895.0 = 1598
,, ,, sea level = 000
$H=$ 0.30123

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_n	Observer	Recorder
Oct. 6th 14^h 15^m	0.30312	402.84	27.7C	$\overset{s}{6.0321}$	28.2C	5 46′15″.6	13 4′39″.4	27.3C	{ Sano Tanakadate	{ Tanakadate Sano
,, ,, 19 8	0.30284	402.84	20.9	6.0163	21.2	5 48 21.2	13 8 52.5	20.7	{ Sano Tanakadate	{ Tanakadate Sano
,, 7th 8 56	0.30278	404.58	23.2	6.0208	23.0	5 47 53.8	13 7 51.2	23.4	{ Sano Tanakadate	{ Tanakadate Sano
Mean	0.30291									

$H=$ 0.30291
Reduction to 1895.0 = −1995
,, ,, sea level = 000
$H=$ 0.30271

Neighbourhood of the above station (名古屋出張)

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 17th 10^h 14^m	3	48° 48′.3	Turuta	Uziie

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_n	Observer	Recorder
Aug. 17th 11^h 30^m	0.30011	460.91	31.0C	$\overset{s}{5.6504}$	30.6C	6 35′55″.0	15 2′50″.0	31.4C	{ Uziie Turuta	{ Turuta Uziie

70. MAEGASU.

Aza Nakayama near the branching point of Ikedagawa

(字中山池田川ノ分岐點近傍)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	18th	4h	7m	4	37′	52″	Tanakadate	Tanakadate
„	„	7	18	„	38	5	„	„
„	„	8	20	„	37	37	„	„
„	„	9	14	„	37	53	„	„
„	„	10	17	„	40	9	„	„
„	„	11	26	„	41	53	„	„
„	„	12	40	„	42	19	„	„
„	„	13	33	„	42	33	„	„
„	„	14	42	„	41	42	„	„
„	„	15	54	„	41	13	„	„
„	„	17	10	„	40	32	„	„
„	„	18	39	„	38	59	„	„
„	„	19	50	„	40	50	„	„
„	„	20	39	„	40	47	„	„
„	„	21	11	„	37	22	„	„
„	„	22	1	„	38	22	„	„
Mean				4°	39′	21″		

δ = 4° 39′.35
Reduction to 1895.0 = 1.26
„ „ sea level = 0.00
δ = 4° 40′.6

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	3rd	17h	40m	3	48	50′.2	Uziie	Iwaoka
„	„	23	35	3	„	50.0	Turuta	Turuta
„	4th	9	15	3	„	48.1	Uziie	Tanakadate
Mean					48	49′.4		

θ = 48° 49′.4
Reduction to 1895.0 = −0.85
„ „ sea level = 0.00
θ = 48° 48′.5

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 3rd 21h 30m	0.30131	465.41	27°.2C	5.6131 s	27°.2C	6 38′31″.2	15 8′58″.8	27°.2C	Turuta, Iwaoka	Iwaoka, Turuta
„ 4th 7 51	0.30179	465.59	25.3	5.6073	25.3	6 38 51.3	15 11 3.8	25.3	Uziie, Tanakadate	Tanakadate, Uziie
„ „ 13 44	0.30162	463.76	31.9	5.6211	32.2	6 37 2.5	15 6 21.2	31.5	Iwaoka	Turuta
Mean	0.30157									

H = 0.30157
Reduction to 1895.0 = 1624
„ „ sea level = 000
H = 0.30173

71. YOKKAITI.

Idamura Ōaza Noda (井田村大字野田字上ノ繩四百四二十番)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	19th	16h	9m	4°	37′	1″	Tanakadate	Tanakadate
,,	,,	17	17	,,	36	14	,,	,,
,,	,,	18	24	,,	36	11	,,	,,
,,	,,	20	9	,,	36	4	,,	,,
,,	20th	5	26	,,	33	39	,,	,,
,,	,,	6	57	,,	33	23	,,	,,
,,	,,	8	43	,,	32	21	,,	,,
,,	,,	10	16	,,	35	6	,,	,,
,,	,,	11	9	,,	36	55	,,	,,
,,	,,	12	29	,,	38	32	,,	,,
,,	,,	13	18	,,	38	25	,,	,,
,,	,,	14	33	,,	38	0	,,	,,
,,	,,	15	38	,,	36	37	,,	,,
Mean				4	35′	23″		

δ = 4° 35.′38
Reduction to 1895.0 = 1.27
,, ,, sea level = 0.00
δ = 4 36.′7

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	5th	9h	51m	3	48	37.′8	Iwaoka	Turuta
,,	,,	15	4	3	,,	40.5	Uziie	Iwaoka
,,	,,	19	10	3	,,	40.8	Iwaoka	Uziie
Mean					48	39.′7		

θ = 48° 39.′7
Reduction to 1895.0 = 0.99
,, ,, sea level = 0.00
θ = 48 38.′7

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	5th	8h	26m	0.30159	463.83	29.9C	s 5.6204	30.°1C	6°37′22.″5	15° 7′16.″2	29.°8C	Turuta	Iwaoka
,,	,,	13	27	0.30208	462.42	33.4	5.6250	33.8	6 35 36.3	15 3 18.8	33.1	Uziie	,,
,,	,,	21	3	0.30201	464.41	27.7	5.6130	27.9	6 37 35.0	15 9 6.3	27.4	{ Iwaoka Uziie	{ Uziie Tanakadate
Mean				0.30189									

$H =$ 0.30189
Reduction to 1895.0 = 1664
,, ,, sea level = 00.0
$H =$ 0.30206

72. KAMEYAMA.

Idamura (井田村大字和字荻野官林)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	21st	4h	15m	4°	32′	45″	Tanakadate	Tanakadate
,,	,,	6	49	,,	32	27	,,	,,
,,	,,	8	2	,,	33	17	,,	,,
,,	,,	9	49	,,	34	1	,,	,,
,,	,,	12	10	,,	36	44	,,	,,
,,	,,	13	24	,,	36	4	,,	,,
,,	,,	15	57	,,	34	39	,,	,,
,,	,,	17	48	,,	33	40	,,	,,
,,	,,	19	7	,,	34	3	,,	,,
,,	,,	20	30	,,	33	10	,,	,,
,,	,,	21	20	,,	34	4	,,	,,
,,	,,	23	45	,,	34	15	,,	,,
,,	22nd	5	51	,,	33	9	,,	,,
,,	,,	7	22	,,	32	9	,,	,,
,,	,,	8	5	,,	31	38	,,	,,
Mean				4	34′	10″		

δ = 4° 34′.17
Reduction to 1895.0 = 1.18
,, ,, sea level = −0.01
δ = 4° 35′.3

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	5th	9h	51m	4°	34′	10″	Nakamura	Tomoda
,,	,,	10	32	,,	36	20	Tomoda	Nakamura
,,	,,	11	31	,,	36	55	Nakamura	,,
,,	,,	12	30	,,	33	37	Tomoda	Tomoda
,,	,,	13	37	,,	36	40	Nakamura	,,
,,	,,	14	40	,,	35	10	Tomoda	Nakamura
,,	,,	15	41	,,	33	9	Nakamura	Tomoda
,,	,,	16	6	,,	32	34	Tomoda	Nakamura
,,	,,	17	3	,,	32	25	,,	,,
,,	,,	18	12	,,	31	51	,,	Tomoda
,,	,,	19	11	,,	32	15	Nakamura	Nakamura
,,	,,	20	5	,,	32	34	,,	,,
,,	,,	21	34	,,	32	52	Tomoda	Tomoda
,,	6th	0	3	,,	32	19	,,	,,
,,	,,	2	20	,,	31	47	,,	,,
,,	,,	3	30	,,	31	2	,,	,,
,,	,,	4	43	,,	30	11	,,	,,
,,	,,	5	52	,,	30	32	,,	,,
,,	,,	6	55	,,	30	36	,,	,,
,,	,,	7	36	,,	30	48	Nakamura	Nakamura
,,	,,	8	22	,,	31	5	,,	,,
,,	,,	9	47	,,	34	23	Tomoda	Tomoda
,,	,,	10	40	,,	36	15	,,	,,
Mean				4°	33′	1″		

δ = 4° 33′.02
Reduction to 1895.0 = −1.54
,, ,, sea level = −0.01
δ = 4° 31′.4

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 6th 11h 10m	3	48° 34′.2	Iwaoka	Uziie
,, ,, 15 13	3	,, 34.4	Uziie	Tanakadate
,, ,, 22 19	3	,, 35.1	Turuta	,,
Mean		50° 34′.6		

$\theta = 48°\ 34'.6$
Reduction to 1895.0 = -0.98
,, ,, sea level = -0.01
$\theta = 48°\ 33'.6$

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 5th 11h 9m	3	48° 33′.0	Nakamura	Nakamura
,, ,, 16 17	3	,, 31.1	Tomoda	,,
,, ,, 19 41	3	,, 31.9	Nakamura	,,
July. 6th 6 25	3	,, 31.3	Tomoda	Tomoda
Mean		48° 31′.8		

$\theta = 48°\ 31'.8$
Reduction to 1895.0 = 1.18
,, ,, sea level = -0.01
$\theta = 48\ 33'.0$

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Rscorder
Aug. 6th 9h 48m	0.30140	463.63	33.5C	s 5.6221	33.0C	6°36′ 4″.4	15 2′31″.9	34.0C	Turuta / Iwaoka	Iwaoka / Turuta
,, ,, 14 20	0.30212	461.74	33.7	5.6200	34.3	6 35 10.0	15 2 33.7	33.1	Uziie	Tanakadate
,, ,, 19 46	0.30276	463.71	27.2	5.6105	27.7	6 36 21.0	15 5 40.0	26.8	,, / Turuta	,,
,, 7th 8 54	0.30161	462.53	33.5	5.6278	33.5	6 35 0.0	15 3 53.3	33.5	,,	,, / Uziie
Mean	0.30197									

$H =$ 0.30197
Reduction to 1895.0 = 1715
,, ,, sea level = 113
$H =$ 0.30215

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 5th 13h 13m	0.30198	419.49	28.1C	s 5.8560	28.6C	5°59′34″.4	13 34′15″.6	27.6C	Tomoda	Nakamura
,, ,, 17 43	0.30199	419.70	26.1	5.8540	26.3	5 59 53.8	13 35 9.4	25.9	,,	,,
,, ,, 21 6	0.30208	419.52	26.3	5.8544	26.6	5 59 44.4	13 35 4.4	26.0	,,	,,
,, 6th 9 23	0.30198	419.12	29.4	5.8577	29.4	5 59 15.0	13 33 46.2	29.4	,,	,,
Mean	0.30201									

$H =$ 0.30201
Reduction to 1895.0 = -2048
,, ,, sea level = 113
$H =$ 0.30182

73. TU.

Meteorological Observatory (測候所)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time)				δ			Observer	Recorder
Sept.	22nd	12h	17m	4°	28′	47″	Tanakadate	Tanakadate
,,	,,	13	1	,,	29	39	,,	,,
,,	,,	14	5	,,	29	28	,,	,,
,,	,,	15	12	,,	28	26	,,	,,
,,	,,	16	49	,,	27	24	,,	,,
,,	,,	17	54	,,	27	54	,,	,,
,,	,,	20	18	,,	27	41	,,	,,
,,	23rd	3	50	,,	26	26	,,	,,
,,	,,	6	57	,,	26	6	,,	,,
,,	,,	7	35	,,	25	21	,,	,,
,,	,,	8	32	,,	24	48	,,	,,
,,	,,	9	23	,,	26	23	,,	,,
,,	,,	9	57	,,	27	4	,,	,,
,,	,,	10	59	,,	28	26	,,	,,
,,	,,	11	33	,,	28	44	,,	,,
,,	,,	12	17	,,	29	2	,,	,,
Mean				4°	23′	3″.9		

δ = 4° 27′.23

Reduction to 1895.0 = 1.10

,, ,, sea level = 0.00

δ = 4° 28′.3

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	7th	18h	31m	3	48°	48′.7	Iwaoka	Uziie
,,	8th	9	40	3	,,	29.9	Turuta	Iwaoka
,,	,,	10	49	3	,,	29.5	Iwaoka	Turuta
,,	,,	13	37	3	,,	32.7	,,	,,
Mean					48°	35′.2		

θ = 48° 35′.2

Reduction to 1895.0 = −0.70

,, ,, sea level = 0.00

θ = 48° 34′.5

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug.	7th	20h	7m	0.30175	463.40	28°.2C	5s.6212	28°.4C	6°37′ 7″.5	15 7′11″.2	28.1C	Iwaoka	Uziie
,,	8th	8	0	0.30211	463.85	26.9	5.6144	26.8	6 36 55.0	15 6 38.8	27.1	Turuta	Iwaoka
,,	,,	8	13	0.30195	463.99	27.3	5.6144	26.8	6 36 59.0	15 6 31.3	27.8	Iwaoka	Turuta
,,	,,	12	53	0.30173	461.93	33.7	5.6313	34.2	6 35 25.0	15 2 29.0	33.3	{ Turuta Iwaoka	{ Iwaoka Turuta
Mean				0.30188									

H = 0.30188

Reduction to 1895.0 = 1680

,, ,, sea level = 600

H = 0.30205

74. KAMIYASIRO.

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	23rd	18h	45m	4°	28′	16″	Tanakadate	Tanakadate
,,	,,	19	39	,,	28	11	,,	,,
,,	,,	21	28	,,	28	14	,,	,,
,,	24th	2	24	,,	27	22	,,	,,
,,	,,	3	23	,,	27	25	,,	,,
,,	,,	6	44	,,	26	5	,,	,,
,,	,,	7	30	,,	25	20	,,	,,
,,	,,	8	8	,,	24	41	,,	,,
,,	,,	8	41	,,	24	57	,,	,,
,,	,,	9	46	,,	26	11	,,	,,
,,	,,	10	35	,,	27	24	,,	,,
,,	,,	11	26	,,	28	55	,,	,,
,,	,,	12	49	,,	30	30	,,	,,
,,	,,	13	19	,,	31	14	,,	,,
,,	,,	15	44	,,	29	2	,,	,,
,,	,,	16	59	,,	28	25	,,	,,
,,	,,	17	19	,,	28	25	,,	,,
,,	,,	18	0	,,	28	37	,,	,,
,,	,,	18	26	,,	28	38	,,	,,
Mean				4°	27′	42″		

δ = 4° 27′.70
Reduction to 1895.0 = 0.98
,, ,, sea level = 0.00
δ = 4° 28′.7

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	8th	22h	20m	3	48°	10′.1	Iwaoka	Iwaoka
,,	9th	8	56	3	,,	9.7	Turuta	Turuta
,,	,,	15	21	3	,,	8.5	Tanakadate	Uziie
Mean					48°	9′.4		

θ = 48° 9′.4
Reduction to 1895.0 = −0.42
,, ,, sea level = 0.00
θ = 48° 9′.0

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	9th	7h	55m	0.30331	463.24	27.4C	s 5.6075	27.5C	6°35′10″.0	15 3′ 1″.3	27.4C	Uziie	Turuta
,,	,,	8	20	0.30313	463.43	27.4	5.6073	27.1	6 35 8.8	15 2 27.5	27.6	Turuta	Iwaoka
,,	,,	11	55	0.30310	450.97	36.0	5.6235	36.0	6 32 32.5	14 55 40.0	36.1	Iwaoka	,,
,,	,,	13	51	0.30353	459.68	37.4	5.6282	37.8	6 31 33.7	14 54 23.7	37.0	Uziie	Tanakadate
Mean				0.30329									

H = 0.30329
Reduction to 1895.0 = 16
,, ,, sea level = 00
H = 0.30345

75. TOBA.

Aza Umanotani Utikosi No. 155 (字馬ノ谷打越百五十五番地)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour. (Mean Local Time.)			δ			Observer	Recorder
Sept.	25^{nd} 15^h	40^m	4°	31′	0″	Tanakadate	Tanakadate
,,	,, 16	37	,,	30	9	,,	,,
,,	,, 17	45	,,	29	50	,,	,,
,,	,, 21	43	,,	24	20	,,	,,
,,	,, 22	24	,,	25	30	,,	,,
,,	,, 23	24	,,	25	4	,,	,,
,,	26^{th} 3	57	,,	24	16	,,	,,
,,	,, 7	14	,,	21	40	,,	,,
,,	,, 7	45	,,	20	51	,,	,,
,,	,, 8	11	,,	20	13	,,	,,
,,	,, 8	46	,,	20	48	,,	,,
,,	,, 9	12	,,	21	50	,,	,,
,,	,, 10	8	,,	23	56	,,	,,
,,	,, 11	13	,,	27	25	,,	,,
,,	,, 11	42	,,	28	25	,,	,,
,,	,, 12	13	,,	30	3	,,	,,
,,	,, 12	37	,,	30	33	,,	,,
,,	,, 13	12	,,	31	1	,,	,,
,,	,, 13	32	,,	31	11	,,	,,
,,	,, 13	50	,,	31	11	,,	,,
,,	,, 14	5	,,	30	38	,,	,,
,,	,, 14	33	,,	29	8	,,	,,
,,	,, 15	9	,,	28	0	,,	,,
,,	,, 16	19	,,	26	47	,,	,,
,,	,, 17	24	,,	26	14	,,	,,
,,	,, 18	31	,,	27	6	,,	,,
,,	,, 18	57	,,	26	26	,,	,,
,,	,, 19	20	,,	26	36	,,	,,
,,	,, 19	44	,,	26	26	,,	,,
,,	,, 20	17	,,	25	45	,,	,,
,,	,, 20	46	,,	24	55	,,	,,
,,	,, 21	12	,,	25	11	,,	,,
,,	,, 23	7	,,	26	21	,,	,,
Mean			4°	25′	53″		

$$\delta = 4^\circ\ 25'.88$$

Reduction to 1895.0 = 0.94

,, ,, sea level = 0.00

$$\delta = 4^\circ\ 26'.8$$

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	9^{th}	22^h	47^m	3	47°	59.0	Uziie	Iwaoka
,,	10^{th}	10	3	3	,,	57.1	Iwaoka	Uziie
,,	,,	14	38	3	,,	56.6	Tanakadate	Tanakadate
,,	,,	16	8	—	,,	57.4	,,	,,
Mean					47	57.5		

$$\theta = 47^\circ\ 57'.5$$

Reduction to 1895.0 = −0.28

,, ,, sea level = −0.01

$$\theta = 47^\circ\ 57'.2$$

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug.	10th	8h	28m	0.30372	462.75	31.8C	5.6069 s	31.5C	6°33′ 7″.5	14°56′41″.3	32.2C	Iwaoka	Uziie
..	..	12	56	0.30407	461.69	32.5	5.6112	33.1	6 32 21.2	14 55 36.2	31.9	{ Uziie / Tanakadate	{ Tanakadate / Iwaoka
..	..	20	29	0.30412	463.06	26.8	5.6060	26.4	6 33 35.0	14 58 53.7	27.2	{ Iwaoka / ..	{ Uziie / Tanakadate
Mean				0.30397									

$H =$ 0.30397
Reduction to 1895.0 = 1562
.. .. sea level = 63
$H =$ 0.30413

76. KATIKAWA.

No. 2023, Katikawamura near Subara Zinsya.

(須原神社近傍勝川村字南東山二千二十三番)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	6th	15h	8m	4	42′	4″	Tanakadate	Tanakadate
..	..	16	11	..	43	10	..	..
..	..	16	47	..	42	40	..	..
..	..	17	15	..	42	10	..	..
..	..	18	7	..	43	33	..	..
..	..	19	36	..	43	20	..	..
..	..	21	32	..	40	10	..	..
..	..	21	38	..	38	39	..	..
..	7th	3	41	..	42	2	..	..
..	..	6	53	..	42	31	..	..
..	..	7	23	..	41	51	..	..
..	..	8	15	..	40	49	..	..
..	..	9	3	..	42	2	..	..
..	..	10	12	..	43	52	..	..
..	..	11	25	..	47	5	..	..
..	..	12	12	..	47	59	..	..
..	..	12	55	..	47	13	..	..
..	..	13	55	..	46	41	..	..
..	..	14	46	..	45	0	..	..
..	..	15	13	..	44	25	..	..
Mean				4	43′	14″		

$\delta = 4°$ 43′.23
Reduction to 1895.0 = 1.25
.. .. sea level = 0.00
$\delta = 4°$ 44′.5

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ	Observer	Recorder
Aug.	12th	19h	54m	3	18° 53′.1	Tanakadate	Uziie
..	13th	9	54	3	.. 52.8	Iwaoka	Iwaoka
..	..	14	50	3	.. 57.7	Uziie	..
Mean					18° 54′.5		

$\theta =$ 18° 54′.5
Reduction to 1895.0 = −0.83
.. .. sea level = 0.00
$\theta =$ 18° 53′.7

HORIZONTAL INTENSITY (*H*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 12th 18h 21m	0.30087	462.55	29°.0C	5.6344s	29°.0C	6 37′ 17″.5	15° 7′ 15″.0	28°.9C	Iwaoka	Iwaoka
„ „ 22 4	0.30141	462.66	26.6	5.6288	26.8	6 37 20.0	15 8 15.0	25.5	Uziie „	Tanakadate Iwaoka
„ 13th 8 6	0.30006	462.20	31.3	5.6417	30.0	6 36 56.3	15 5 18.8	32.7	Turuta	Uziie
Mean	0.30078									

$H = 0.30078$

Reduction to 1895.0 = 1599

„ „ sea level = 600

$= 0.30094$

77. KIYOSU.

Aza Baba Gozyōgawa embankment (字馬場五條川東岸堤防上)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	20th	8h	0m	4°	35′	55″	Tanakadate	Tanakadate
„	„	8	32	„	36	17	„	„
„	„	9	27	„	37	24	„	„
„	„	10	35	„	40	44	„	„
„	„	11	17	„	41	33	„	„
„	„	11	52	„	41	50	„	„
„	„	12	0	„	41	53	„	„
„	„	13	7	„	42	13	„	„
„	„	14	10	„	41	26	„	„
„	„	15	34	„	39	5	„	„
„	„	17	25	„	40	55	„	„
„	„	18	17	„	41	15	„	„
„	„	18	51	„	42	39	„	„
„	„	20	5	„	41	2	„	„
„	„	21	21	„	39	50	„	„
„	„	22	6	„	38	8	„	„
Oct.	1st	0	9	„	35	55	„	„
„	„	9	13	„	35	35	„	„
„	„	9	47	„	38	56	„	„
„	„	10	33	„	40	49	„	„
„	„	11	32	„	43	53	„	„
„	„	12	29	„	44	50	„	„
„	„	13	11	„	45	9	„	„
„	„	14	27	„	44	42	„	„
„	„	15	28	„	42	43	„	„
„	„	16	53	„	41	7	„	„
„	„	17	35	„	41	14	„	„
„	„	18	16	„	41	25	„	„
„	„	19	18	„	41	21	„	„
„	„	20	20	„	41	1	„	„
„	„	22	21	„	40	54	„	„
„	2nd	3	45	„	39	54	„	„
„	„	7	6	„	37	31	„	„
„	„	7	18	„	36	30	„	„
„	„	8	11	„	35	8	„	„
„	„	8	40	„	32	0	„	„
„	„	8	57	„	33	15	„	„
„	„	9	20	„	33	23	„	„
„	„	9	41	„	34	26	„	„
„	„	10	1	„	35	40	„	„
Mean				4	39′	38″		

δ = 4° 39′.63

Reduction to 1895.0 = 1.29

„ „ sea level = 0.00

δ = 4° 40′.9

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	13th	23h	50m	3	48	56.9	Iwaoka	Tanakadate
,,	14th	9	18	3	49	0.2	Furuta	Uziie
,,	,,	11	16	—	48	53.0	Tanakadate	Tanakadate
Mean					48	56'.1		

$\theta = 48° \quad 56'.1$
Reduction to 1895.0 = −0.97
,, ,, sea level = 0.66
$\theta = 48 \quad 55'.1$

HORIZONTAL INTENSITY (H)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	13th	21h	16m	0.30095	162.26	28.1C	5.6364 s	28.7C	6 37'25".0	15 7'58".8	27.4C	Iwaoka, Tanakadate	Tanakadate, Iwaoka
,,	14th	7	36	0.30055	162.52	28.9	5.6369	28.6	6 37 23.7	15 7 11.3	29.3	Uziie	Tanakadate
,,	,,	12	34	0.30055	160.00	35.4	5.6527	35.0	6 35 8.8	15 1 58.8	35.2	Iwaoka	Turuta
Mean				0.30068									

$H = 0.30068$
Reduction to 1895.0 = 13
,, ,, sea level = 0.00
$H = 0.30081$

78. GIHU.

Play ground at Tyūgaku (中學校運動場)

DECLINATION (δ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				θ			Observer	Recorder
Sept.	6th	10h	55m	1	14'	4"	Iwaoka	Uziie
,,	,,	11	21	,,	15	54	,,	Turuta
,,	,,	12	11	,,	15	55	,,	Tanakadata
,,	,,	12	18	,,	15	19	,,	Iwaoka
,,	,,	13	20	,,	15	35	,,	Uziie
,,	,,	14	4	,,	15	25	Uziie	,,
,,	,,	14	16	,,	14	0	,,	,,
,,	,,	15	15	,,	15	33	,,	Turuta
,,	,,	15	53	,,	14	9	Turuta	,,
,,	,,	16	21	,,	13	58	,,	Tanakadate
,,	,,	17	11	,,	13	11	Tanakadate	,,
,,	,,	17	31	,,	13	30	,,	,,
,,	,,	18	17	,,	13	28	,,	,,
,,	,,	19	7	,,	14	8	Iwaoka	Iwaoka
,,	,,	19	50	,,	13	59	Turuta	Turuta
,,	,,	20	38	,,	12	35	,,	Iwaoka
,,	,,	22	45	,,	13	31	,,	,,
,,	,,	23	39	,,	13	50	,,	,,
,,	7th	5	26	,,	11	10	,,	,,
,,	,,	6	9	,,	10	31	,,	Turuta
,,	,,	6	46	,,	10	54	,,	,,
,,	,,	7	23	,,	10	52	Iwaoka	Tanakadate
,,	,,	8	11	,,	10	29	,,	,,
,,	,,	9	10	,,	12	2	,,	,,
Mean				1°	13'	18"		

$\delta = 1 \quad 13'.30$
Reduction to 1895.0 = 1.15
,, ,, sea level = −0.01
$\delta = 1 \quad 14'.4$

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	15th	9h	41m	3	49°	9'.5	Turuta	Turuta
		14	29	3	,,	10.3	Iwaoka	Uziie
,,	,,	20	49	3	,,	6.0	Turuta	Turuta
,,	16th	21	30	3	,,	10.4	Uziie	Uziie
Mean					49	9.0		

θ = 49 9.0
Reduction to 1895.0 = −1.24
,, ,, sea level = −0.02
θ = 49 7.7

HORIZONTAL INTENSITY.
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_n	Observer	Recorder
Aug.	15th	8h	5m	0.30067	461.61	29.5C	5.6430 s	28.7C	6 36'59".0	15. 6'36".2	30.3C	Uziie Turuta	Iwaoka ,,
,,	,,	13	18	0.30058	459.24	36.1	5.6588	37.1	6 34 51.3	15 1 38.1	35.8	,, Iwaoka	Tanakadate Uziie
,,	16th	6	19	0.30034	462.60	26.2	5.6394	26.0	6 37 54.0	15 8 15.0	26.4	Turuta	Tanakadate
,,	,,	7	20	0.30028	461.65	28.7	5.6448	28.3	6 37 5.0	15 6 35.0	29.0	,,	,,
,,	,,	8	18	0.30028	460.72	32.4	5.6504	32.0	6 36 0.0	15 3 46.0	32.9	,,	,,
,,	,,	9	29	0.30075	458.69	35.6	5.6586	35.2	6 31 22.5	15 1 16.0	35.9	,,	,,
,,	,,	10	22	0.30036	458.57	37.1	5.6631	36.7	6 34 7.5	14 59 15.0	37.5	,,	,,
,,	,,	11	19	0.30011	458.52	38.4	5.6666	38.4	6 31 12.5	14 59 26.0	38.3	,,	,,
,,	,,	12	33	0.30027	457.31	40.2	5.6736	40.8	6 33 25.0	14 58 11.0	39.7	,,	,,
,,	,,	13	38	0.30061	457.22	38.6	5.6718	39.8	6 33 35.0	14 59 22.5	37.1	,,	,,
,,	,,	14	56	0.30024	458.35	36.1	5.6679	37.2	6 34 35.0	15 0 57.5	35.5	,,	,,
,,	,,	16	25	0.30050	458.56	35.0	5.6638	35.8	6 34 14.0	15 1 16.3	34.1	,,	,,
,,	,,	17	38	0.30071	459.59	32.1	5.6559	33.3	6 35 39.0	15 4 11.0	30.9	,,	,,
,,	,,	18	47	0.30067	460.86	28.8	5.6175	29.2	6 36 32.5	15 6 0.0	28.4	,,	,,
,,	17th	0	15	0.30037	451.61	27.5	5.6450	27.7	6 37 4.3	15 6 18.8	27.4	,,	,,
Mean				0.30045									

H = 0.30045
Reduction to 1895.0 = 1681
,, ,, sea level = 192
H = 0.30064

79. NAKATUGAWA.

Park of Aza Uegane (字上金公園)

DECLINATION (δ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	8th	17h	8m	1	13'	26"	Tanakadate	Tanakadate
,,	,,	17	47	,,	11	0	,,	,,
,,	,,	18	30	,,	11	1	,,	,,
,,	,,	19	9	,,	13	35	,,	,,
,,	,,	20	23	,,	12	50	,,	,,
,,	,,	21	15	,,	43	23	,,	,,
,,	9th	1	34	,,	11	50	,,	,,
,,	,,	5	15	,,	11	25	,,	,,
,,	,,	7	15	,,	11	50	,,	,,
,,	,,	7	52	,,	11	6	,,	,,
,,	,,	8	33	,,	39	16	,,	,,
,,	,,	9	11	,,	59	5	,,	,,
,,	,,	9	15	,,	39	26	,,	,,
,,	,,	10	30	,,	10	29	,,	,,
,,	,,	11	28	,,	12	51	,,	,,
,,	,,	12	23	,,	11	25	,,	,,
,,	,,	14	36	,,	12	45	,,	,,
,,	,,	15	1	,,	12	19	,,	,,
,,	,,	15	58	,,	12	14	,,	,,
,,	,,	16	21	,,	12	8	,,	,,
,,	,,	16	57	,,	12	15	,,	,,
,,	,,	17	37	,,	11	19	,,	,,
Mean				1	12'	8"		

δ = 1 12'.13
Reduction to 1895.0 = 1.32
,, ,, sea level = −0.02
δ = 1 13'.4

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	19th	10h	12m	3	49	11.3	Iwaoka	Tanakadate
"	"	11	18	-	"	9.2	"	"
"	"	21	32	3	"	3.5	Uziie	Uziie Iwaoka
Mean					49	8.0		

$\theta = 49 \quad 8.0$
Reduction to 1895.0 = −0.41
" " sea level = −0.03
$\theta = 49 \quad 7.6$

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	19th	8h	35m	0.29831	164.67	25.0C	s 5.66355	25.1C	6 40′ 2.5	15 13′ 10.0	24.9C	Uziie Iwaoka	Tanakadate "
"	"	13	30	0.29938	160.23	27.8	5.66410	28.6	6 37 58.8	15 9 36.3	27.1	Iwaoka Tanakadate	Uziie Iwaoka
"	"	19	11	0.29887	162.08	22.6	5.65590	22.6	6 39 57.5	15 13 16.3	22.7	Iwaoka Tanakadate	Tanakadate Iwaoka
Mean				0.29886									

$H = 0.29886$
Reduction to 1895.0 = 1322
" " sea level = 384
$H = 0.29903$

80. IIDA.

Aza Imamiya (字今宮切開地)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	22nd	7h	44m	1	28′	32″	Tanakadate	Iwaoka
"	"	9	7	"	30	20	Iwaoka	Uziie
"	"	10	27	"	33	0	Tanakadate	"
"	"	11	7	"	34	16	Iwaoka	Tanakadate
"	"	11	45	"	35	1	Uziie	"
"	"	13	38	"	36	1	Tanakadate	Uziie
"	"	15	11	"	33	39	"	Iwaoka
"	"	16	19	"	33	0	Uziie	"
"	"	17	8	"	32	36	Iwaoka	Uziie
"	"	17	45	"	31	20	"	"
"	"	19	40	"	32	20	"	Tanakadate
"	"	21	15	"	34	35	"	"
"	"	22	24	"	32	34	"	"
"	"	23	26	"	32	0	"	"
Mean				1	32′	6″		

$\delta = 1 \quad 32.10$
Reduction to 1895.0 = 1.44
" " sea level = −0.03
$\delta = 1 \quad 33.5$

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	11th	8h	21m	1°	35′	1″	Tanakadate	Tanakadate
,,	,,	9	16	,,	34	54	,,	,,
,,	,,	10	23	,,	36	51	,,	,,
,,	,,	11	32	,,	38	25	,,	,,
,,	,,	12	21	,,	38	38	,,	,,
,,	,,	13	29	,,	35	15	,,	,,
,,	,,	13	38	,,	35	0	,,	,,
,,	,,	14	19	,,	34	38	,,	,,
,,	,,	15	27	,,	33	56	,,	,,
,,	,,	16	20	,,	33	50	,,	,,
,,	,,	17	36	,,	33	14	,,	,,
,,	,,	19	1	,,	33	24	,,	,,
,,	,,	22	53	,,	33	0	,,	,,
,,	12th	0	22	,,	32	31	,,	,,
,,	,,	2	21	,,	31	39	,,	,,
,,	,,	5	46	,,	31	20	,,	,,
Mean				1°	33′	37″		

δ = 1° 33′.62
Reduction to 1895.0 = 1.30
,, ,, sea level = 0.03
δ = 4° 34′.9

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	22nd	10h	5m	3	19°	7′.7	Iwaoka	Uziie
,,	,,	14	49	-	,,	5.0	Tanakadate	Iwaoka
,,	,,	19	9	3	,,	6.6	Uziie	Tanakadate
Mean					19°	6′.4		

θ = 19° 6′.4
Reduction to 1895.0 = −0.26
,, ,, sea level = −0.05
δ = 19° 6′.1

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	22th	8h	39m	0.29805	461.50	24.1C	5s.66767	24.5C	6° 10′ 27″.5	15° 14′ 15″.0	23.8C	Iwaoka	Uziie
,,	,, th	13	8	0.29871	461.45	24.6	5.6321	25.1	6 39 33.7	15 12 40.0	24.1	Uziie	Tanakadate
,,	,,	20	14	0.29819	461.88	23.2	5.6608	23.4	6 10 8.8	15 14 0.0	23.1	{ ,, Tanakadate,	{ Iwaoka ,,
Mean				0.29812									

H = 0.29812
Reduction to 1895.0 = 1164
,, ,, sea level = 673
H = 0.29860

81. MATUO.

Aza Tyagarayama, Sisizuka (字茶柄山獅子塚)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	23rd	10h	42m	1°	46′	18″	Tanakadate	Uziie
,,	,,	12	38	,,	43	58	Uziie	Iwaoka
,,	,,	13	53	,,	41	15	,,	,,
,,	,,	15	28	,,	40	17	,,	,,
,,	,,	16	2	,,	37	10	Iwaoka	Uziie
,,	,,	18	3	,,	34	9	,,	,,
,,	,,	20	13	,,	34	31	,,	,,
,,	,,	21	25	,,	43	3	,,	,,
,,	24th	6	15	,,	38	18	,,	,,
Mean				1°	36′	15		

δ = 1° 36′.25
Reduction to 1895.0 = 1.44
,, ,, sea level = −0.03
δ = 4° 37′.7

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 23rd 11h 59m	3	49° 10′.6	Iwaoka	Uziie
,, ,, 17 29	3	,, 11.5	Uziie	Iwaoka
Mean		49 11′.1		

$\theta = 49°\ 11'.1$
Reduction to 1895.0 = −0.27
,, ,, sea level = −0.05
$\theta = 49°\ 10'.8$

HORIZONTAL INTENSITY (H)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 23rd 14h 50m	0.29822	458.80	31.2 C	s 5.68320	31.5 C	6°37′40″.6	15° 8′15″.0	30.9 C	Iwaoka	Uziie
,, ,, 19 31	0.29821	460.94	24.3	5.66044	24.6	6 39 52 .5	15 13 18 .8	24.1	Uziie	Tanakadate
Mean	0.29822									

$H = 0.29822$
Reduction to 1895.0 = 1197
,, ,, sea level = 673
$H = 0.29841$

82. HUKUSIMA.

No. 1846, Hukusimamura (福島村千八百四十六番地)

DECLINATION (δ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 25th 2h 3m	4° 56′ 55″	Iwaoka	Iwaoka
,, ,, 6 36	,, 52 50	Tanakadate	Uziie
,, ,, 8 15	,, 51 59	Uziie	Tanakadate
,, ,, 9 36	,, 53 54	Tanakadate	Uziie
,, ,, 10 20	,, 56 1	Uziie	Tanakadate
,, ,, 11 36	,, 59 52	Tanakadate	Uziie
,, ,, 12 6	5 0 58	,,	Iwaoka
,, ,, 13 38	,, 0 53	,,	,,
,, ,, 15 21	,, 0 8	Iwaoka	Tanakadate
,, ,, 16 30	,, 58 29	,,	Uziie
,, ,, 17 25	,, 57 0	Uziie	Iwaoka
,, ,, 19 28	,, 54 25	,,	,,
,, ,, 22 30	,, 54 19	Iwaoka	Uziie
Mean	4 56′ 1″		

$\delta = 4°\ 56'.02$
Reduction to 1895.0 = 1.57
,, ,, sea level = 0.06
$\delta = 4°\ 57'.5$

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 26th 9h 9m	3	50° 25′.4	Tanakadate	Uziie
,, ,, 11 46	3	,, 20.3	Iwaoka	Tanakadate
,, ,, 21 25	3	,, 23.5	Uziie	Iwaoka
Mean		50 23′.1		

$\theta = 50°\ 23'.1$
Reduction to 1895.0 = −0.68
,, ,, sea level = −0.07
$\theta = 50°\ 22'.3$

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections. φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 23th 7h 44m	0.29565	462.51	20.2C	5.68218s	19.5C	6 44′11″.3	15 23′ 8″.8	20.9C	Uziie / Tanakadate	Tanakadate / Uziie
" " 13 13	0.29612	458.0[illegible]	32.0	5.70754	32.3	6 40 1.3	15 14 0.0	31.7	Iwaoka / Tanakadate	Tanakadate / Iwaoka
" " 18 46	0.29595	462.15	20.7	5.6822	20.3	6 43 45.0	15 22 23.8	21.0	Uziie / Iwaoka	" / Uziie
Mean	0.29591									

$H=$ 0.29591
Reduction to 1895.0 = 1276
" " sea level = 998
$H=$ 0.29614

83. NOMUGI.

Aza Simonohara (字下ノ原)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 28th 8h 58m	4 52′ 45″	Tanakadate	Uziie
" " 10 14	" 55 10	"	"
" " 11 53	" 59 13	"	"
" " 12 40	" 58 58	Uziie	Tanakadate
" " 13 57	" 59 55	Iwaoka	"
" " 15 50	" 58 3	"	Iwaoka
" " 17 1	" 55 52	"	"
" " 17 42	" 55 23	Iwaoka	"
" " 19 18	" 54 30	"	"
" " 22 53	" 54 33	"	"
Mean	4 55′ 2″		

$\delta=4°$ 55′.03
Reduction to 1895.0 = 1.68
" " sea level = −0.08
$\delta=4°$ 56′.6

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 28th 11h 32m	3	49 38′.6	Iwaoka	Tanakadate
" " 15 17	—	" 38.4	"	Iwaoka
" " 22 2	—	" 38.8	"	"
Mean		49 38′.5		

$\theta=49$ 38′.5
Reduction to 1895.0 = −0.95
" " sea level = −0.10
$\theta=49$ 37′.5

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 28th 9h 50m	0.29894	460.31	26.7C	5.6655	26.4C	6 37′43″.8	15 7′ 57″.5	25.9C	Uziie / Tanakadate	Tanakadats / Uziie
" " 13 29m	0.29935	458.82	29.9	56.732	30.8	6 36 34.0	15 5 40.0	28.9	" / Iwaoka	" / "
" " 19 9	0.29913	462.25	19.4	5.6519	19.3	6 39 42.5	15 43 3.8	19.4	"	Tanakadate
Mean	0.29914									

$H=$ 0.29911
Reduction to 1895.0 = 1327
" " sea level = 1496
$H=$ 0.29942

84. TAKAYAMA.

Ōnatamura （大名田村大字江名子字守屋ヶ洞官林） （97）

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	30th	9h	1m	4°	47′	1″	Iwaoka	Iwaoka
,,	,,	10	22	,,	49	18	Turuta	Tanakadate
,,	,,	11	31	,,	52	15	Iwaoka	Turuta
,,	,,	12	21	,,	52	59	Turuta	Uziie
,,	,,	13	14	,,	53	35	Uziie	Turuta
,,	,,	14	30	,,	53	25	Turuta	Uziie
,,	,,	15	52	,,	52	17	Uziie	Turuta
,,	,,	17	8	,,	50	31	Turuta	,,
,,	,,	19	13	,,	50	59	Tanakadate	,,
,,	,,	21	21	,,	50	29	,,	,,
,,	,,	22	23	,,	49	30	,,	,,
,,	,,	23	24	,,	49	47	,,	,,
,,	31st	5	6	,,	48	10	Iwaoka	Uziie
,,	,,	7	35	,,	45	45	Uziie	Iwaoka
,,	,,	9	11	,,	48	43	Iwaoka	Uziie
,,	,,	17	48	,,	49	53	Uziie	Iwaoka
,,	,,	22	6	,,	50	11	Iwaoka	Uziie
Mean				4	50′	7″		

$\delta = 4°\ 50'.12$
Reduction to 1895.0 = 1.74
,, ,, sea level = −0.04
$\delta = 4°\ 51'.8$

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	30th	10h	1m	3	49°	49′.5	Iwaoka	Tanakadate
,,	,,	13	22	3	,,	44.4	Turuta	Uziie
,,	,,	18	21	3	,,	48.4	Uziie	Turuta
Mean					49	47′.5		

$\theta = 49°\ 47'.5$
Reduction to 1895.0 = −1.21
,, ,, sea level = −0.05
$\theta = 49°\ 46'.2$

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib².	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_v	Observer	Recorder
Aug.	30th	15h	26m	0.29858	158.31	27.0°C	s 5.6832	29.7°C	6°37′12″.5	15° 7′36″.3	28.4°	Turuta	Uziie
,,	31st	6	5	0.29794	461.46	19.7	5.6681	19.7	6 40 36.3	15 15 7.5	19.7	Uziie Iwaoka	Iwaoka Uziie
,,	,,	7	9	0.29809	461.12	21.0	5.6681	21.0	6 39 57.5	15 13 40.6	21.0	,, ,,	,, ,,
,,	,,	9	48	0.29791	457.31	32.6	5.6947	32.5	6 36 43.1	15 6 6.3	32.7	,, ,,	,, ,,
,,	,,	10	57	0.29751	457.73	31.7	5.6957	33.0	6 37 35.0	15 7 59.4	30.4	,, ,,	,, ,,
,,	,,	12	22	0.29814	456.12	36.2	5.7012	36.7	6 35 22.5	15 2 17.5	35.8	,, ,,	,, ,,
,,	,,	13	47	0.29810	456.71	33.5	5.6976	33.9	6 36 9.4	15 4 55.6	33.1	,, ,,	,, ,,
,,	,,	14	56	0.29800	457.00	31.8	5.6976	32.7	6 36 47.5	15 6 27.5	30.9	,, ,,	,, ,,
,,	,,	16	7	0.29782	458.91	25.5	5.6882	27.0	6 39 2.5	15 11 17.5	24.0	,, ,,	,, ,,
,,	,,	17	16	0.29736	461.84	21.1	5.67143	21.0	6 40 6.3	15 11 23.1	21.2	,, ,,	,, ,,
,,	,,	18	29	0.29812	161.42	20.8	5.66924	21.2	6 40 11.3	15 11 15.0	20.5	,, ,,	,, ,,
,,	,,	21	32	0.29812	461.33	19.5	5.6673	19.7	6 40 31.3	15 15 20.0	19.4	,, ,,	,, ,,
Mean				0.29797									

$H = 0.29797$
Reduction to 1895.0 = 1437
,, ,, sea level = 722
$H = 0.29819$

85. Gero.

Ōaza Morigumi (大字森組)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	2nd	6h	39m	4	46′	6″	Tanakadate	Turuta
,,	,,	7	5	,,	40	51	Iwaoka	,,
,,	,,	9	1	,,	40	54	Uziie	Iwaoka
,,	,,	10	39	,,	45	16	Tanakadate	,,
,,	,,	11	29	,,	47	9	,,	Uziie
,,	,,	12	23	,,	49	5	,,	,,
,,	,,	13	54	,,	49	34	Uziie	Iwaoka
,,	,,	15	20	,,	47	59	Iwaoka	Uziie
,,	,,	16	24	,,	47	0	,,	Turuta
,,	,,	17	28	,,	43	4	,,	,,
,,	,,	18	25	,,	46	13	Turuta	,,
,,	,,	19	55	,,	46	0	Uziie	,,
,,	,,	20	30	,,	45	57	Tanakadate	,,
Mean				4	45′	28″		

$\delta = 4\ \ 45'.47$

Reduction to 1895.0 = 1.61

,, ,, sea level = −0.04

$\delta = 4^\circ\ 47'.0$

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	1st	23h	11m	3	49	29.0	Iwaoka	Uziie
,,	2nd	10	8	---	,,	31.1	Uziie	Iwaoka
,,	,,	14	50	3	,,	34.0	Turuta	Uziie
Mean					49	31.4		

$\theta = 49^\circ\ 31'.4$

Reduction to 1895.0 = −0.93

,, ,, sea level = −0.05

$\theta = 49^\circ\ 30'.4$

HORIZONTAL INTENSITY (*H*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	2nd	8h	32m	0.29877	460.57	21.7C	5.6653s	21.4C	6 38′ 44″.4	15 11′ 1″.9	21.9C	Iwaoka	Uziie ,,
,,	,,	13	19	0.29863	456.68	33.3	5.6033	33.9	6 35 22.5	15 2 55.0	32.6	Uziie Turuta	Tanakadate ,,
,,	,,	19	24	0.29904	453.75	24.1	5.7060	24.3	6 32 21.3	14 55 53.8	24.0	,,	,,
Mean				0.29881									

H = 0.29881

Reduction to 1895.0 = 1426

,, ,, sea level = 742

H = 0.29903

86. HATIMAN.

Hatimanmati Ōaza Simatani Aza Imamati (八幡町大字島谷字今町)

DECLINATION (δ)

Observations of the West Party, 1893.

Daet and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	4th	7h	30m	4	45′	0″	Iwaoka	Turuta
,,	,,	9	26	,,	46	56	Tanakadate	,,
,,	,,	10	58	,,	49	49	,,	,,
,,	,,	11	45	,,	50	59	,,	,,
,,	,,	12	25	,,	51	36	,,	,,
,,	,,	14	7	,,	52	16	Uziie	Iwaoka
,,	,,	15	41	,,	50	45	,,	,,
,,	,,	17	5	,,	49	15	Iwaoka	Uziie
,,	,,	19	25	,,	48	52	,,	,,
,,	,,	21	3	,,	48	52	Turuta	,,
,,	,,	22	6	,,	48	56	Iwaoka	Turuta
Mean				4	48′	8″		

$\delta = 4\ \ 48'.13$

Reduction to 1895.0 = 1.59

,, ,, sea level = −0.01

$\delta = 4\ \ 49'.7$

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder.
Sept.	4th	10h	36m	3	49	23.3	Tanakadate	Turuta
,,	,,	15	13	3	,,	24.1	Iwaoka	Uziie
,,	,,	18	12	3	,,	23.2	Uziie	,,
Mean					49°	23′.5		

$\theta = 49°\ 23'.5$
Reduction to 1895.0 = −1.20
,, ,, sea level = −0.02
$\theta = 49\ \ 22'.3$

HORIZONTAL INTENSITY (*H*)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	4th	8h	51m	0.29982	453.60	25.1C	s 5.6993	25.1C	6°30′56″.2	14°52′20″.0	25.1C	Turuta	Tanakadate
,,	,,	13	30	0.29998	452.99	27.3	5.7057	26.5	6 29 33 .8	14 49 45 .0	28.2	Tanakadate	Turuta
,,	,,	20	22	0.29989	454.52	21.5	5.6923	21.4	6 31 51 .3	14 54 42 .5	21.6	{ Iwaoka { Turuta	{ Uziie { ,,
Mean				0.29990									

H = 0.29990
Reduction to 1895.0 = 1512
,, ,, sea level = 269
H = 0.30008

87. NAGAMINE.

Nagaminemura Aza Umanose (長嶺村字馬ノ瀬)

DECLINATION (δ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	7th	21h	48m	4°	57′	29″	Tanakadate	Iwaoka
,,	8th	2	26	,,	55	42	Uziie	Uziie
,,	,,	4	46	,,	54	20	,,	,,
,,	,,	5	51	,,	53	15	,,	,,
,,	,,	8	48	,,	52	19	Tanakadate	Turuta
,,	,,	10	25	,,	55	55	,,	,,
,,	,,	11	29	,,	56	26	,,	,,
,,	,,	12	11	,,	57	28	Iwaoka	,,
,,	,,	13	42	,,	58	54	,,	Iwaoka
,,	,,	15	26	,,	55	34	Uziie	,,
,,	,,	16	21	,,	53	7	,,	Tanakadate
,,	,,	16	49	,,	52	25	Tanakadate	Uziie
,,	,,	18	20	,,	55	16	,,	,,
,,	,,	20	13	,,	54	20	,,	,,
,,	,,	20	56	,,	53	13	,,	Tanakadate
Mean				4°	54′	34″		

$\delta = 4\ \ 54'.57$
Reduction to 1895.0 = 1.58
,, ,, sea level = −0.03
$\delta = 4\ \ 56'.1$

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	8th	9h	39m	3	49	33.0	Uziie	Uziie
,,	,,	10	2	3	,,	27.4	Turuta	Tanakadate
,,	,,	14	51	3	,,	30.1	Iwaoka	Iwaoka
,,	,,	17	55	3	,,	27.9	Tanakadate	Uziie
Mean					49°	29′.6		

$\theta = 49\ \ 29'.6$
Reduction to 1895.0 = −1.45
,, ,, sea level = −0.04
$\theta = 49\ \ 28'.1$

HORIZONTAL INTENSITY (*H*)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 8th 7^h 51^m	0.29933	453.89	22.5 C	5.7017 s	22.4 C	6°32′10″.0	14°55′35″.0	22.6 C	Uziie / Iwaoka	Iwaoka / Uziie
.. .. 13 21	0.29947	451.71	28.7	5.7153	29.2	6 30 2.5	14 50 40.6	28.3	..	Tanakadate
.. .. 19 36	0.29907	453.47	23.2	5.7075	23.5	6 32 13.8	14 55 47.5	23.0	Iwaoka	Uziie
Mean	0.29929									

$H =$ 0.29929
Reduction to 1895.0 = 1632
,, ,, sea level = 474
$H =$ 0.29950

88. NAGAHAMA.
Ruin of Old Castle (舊城趾)

DECLINATION (δ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	δ			Observer	Recorder
Sept. 9th 18^h 8^m	4	44′	2″	Tanakadate	Turuta
,, ,, 19 55	,,	45	0	Uziie	Iwaoka
,, ,, 22 5	,,	45	48	,,	Turuta
,, 10th 3 4	,,	45	53	Turuta	,,
,, ,, 6 20	,,	44	17	Tanakadate	Tanakadate
,, ,, 7 7	,,	41	21	,,	Turuta
,, ,, 8 45	,,	45	19	,,	Uziie
,, ,, 8 52	,,	45	20	,,	,,
,, ,, 10 50	,,	48	6	Uziie	,,
,, ,, 11 49	,,	49	23	,,	,,
,, ,, 12 34	,,	50	30	,,	Tanakadate
,, ,, 13 54	,,	55	5	,,	,,
,, ,, 14 11	,,	48	50	Tanakadate	Uziie
,, ,, 16 27	,,	44	39	Turuta	,,
,, ,, 17 54	,,	45	5	Tanakadate	Turuta
,, ,, 18 33	,,	45	35	,,	,,
Mean	4	46′	8″		

δ = 4 46′.13
Reduction to 1895.0 = 1.43
,, ,, sea level = 0.00
δ = 4 47′.6

DECLINATION (δ)
Observations of the Kinki Party, 1893.

Date and Hour (Mean Local Time.)	δ			Observer	Recorder
July. 15th 22^h 33^m	4°	49′	7″	Tomoda	Tomoda
,, 16th 4 28	,,	48	15	,,	,,
,, ,, 5 37	,,	47	44	,,	,,
,, ,, 7 10	,,	46	8	,,	,,
,, ,, 7 52	,,	46	7	Katō	,,
,, ,, 9 11	,,	45	10	,,	Katō
,, ,, 10 19	,,	47	46	,,	,,
,, ,, 11 25	,,	49	50	,,	,,
,, ,, 12 28	,,	52	42	Tomoda	Tomoda
,, ,, 13 26	,,	51	16	Katō	Katō
,, ,, 13 47	,,	54	20	,,	,,
,, ,, 15 2	,,	54	47	Tomoda	,,
,, ,, 16 8	,,	53	19	Katō	Tomoda
,, ,, 18 49	,,	50	50	Tomoda	,,
,, ,, 19 58	,,	49	30	,,	,,
Mean	4	49′	48″		

δ = 4 49′.80
Reduction to 1895.0 = −1.68
,, ,, sea level = 0.00
δ = 4 48′.1

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 9th 21h 31m	3	49° 12′.6	Iwaoka	Uziie
,, 10th 10 16	3	,, 11.5	Uziie	,,
,, ,, 15 41	3	,, 3.7	Tanakadate	,,
,, ,, 17 20	3	,, 5.3	,,	Turuta
Mean		49 8.3		

$\theta = 49°$ 8′.3

Reduction to 1895.0 = −1.44

,, ,, sea level = −0.01

$\theta = 49°$ 6′.8

DIP (θ)

Observations of the Kinki Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 16th 6h 38m	3	49° 5′.5	Tomoda	Tomoda
,, ,, 10 56	3	,, 6.7	Katō	Katō
,, ,, 16 43	3	,, 8.7	Tomoda	,,
Mean		49° 7′.0		

$\theta = 49$ 7′.0

Reduction to 1895.0 = 1.69

,, ,, sea level = −0.01

$\theta = 49$ 8′.7

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 9th 19h 16m	0.30059	452.67	25.8C	s 5.6967	25.2C	6°29′ 5″.0	14 48′11″.3	26.3C	{ Turuta / Tanakadate	{ Tanakadate / Turuta
,, 10th 8 21	0.30090	451.57	29.4	5.7007	28.8	6 27 45.0	14 45 16.3	30.0	Uziie	Tanakadate
,, ,, 13 32	0.30118	449.88	33.7	5.7128	35.2	6 26 20.0	14 41 51.3	32.3	{ ,, / Tanakadate	{ ,, / Uziie
Mean	0.30089									

$H = 0.30089$

Reduction to 1895.0 = 1663

,, ,, sea level = 64

$H = 0.30106$

HORIZONTAL INTENSITY (H)

Observations of the Kinki Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 15th 22h 2m	*0.30129	424.23	23.5C	s 5.8096	23.4C	(6° 4′46″.2	13 46′45″.1	23.6C	{ Tomoda / Katō	{ Katō / Tomoda
,, 16 8 46	0.30111	422.26	29.5	5.8439	29.0	6 3 5.0	13 42 51.9	30.0	Tomoda	Katō
,, ,, 14 37	0.30108	421.93	31.0	5.8495	32.1	6 3 0.0	13 42 25.6	29.9	{ ,, / Katō	{ ,, / Tomoda
Mean	0.30116									

$H = 0.30116$

Reduction to 1895.0 = −1954

,, ,, sea level = 64

$H = 0.30097$

Nagahama （長濱へ出張）

At station, observed in 1887.

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 18h 24m	3	59 7.0	Katō	,,

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M*)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
	*0.30064	423.14	27.4C	s 5.8431	27.5C	..	..	..	Katō	Katō

89. TURUGA.

Matubaramura Ōaza Matusima (松原村大字松島第百八號字野畑第五番畑)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	11th	2h	20m	4°	45′	21″	Iwaoka	Iwaoka
,,	,,	5	50	,,	43	23	Tanakadate	Tanakadate
,,	,,	6	0	,,	42	3	,,	,,
,,	,,	6	31	,,	42	29	,,	Turuta
,,	,,	9	18	,,	46	45	Uziie	,,
,,	,,	11	9	,,	51	20	Turuta	Uziie
,,	,,	11	36	,,	52	28	Uziie	Turuta
,,	,,	12	11	,,	53	30	,,	,,
,,	,,	13	55	,,	52	22	Iwaoka	,,
,,	3rd	15	32	,,	48	8	,,	Iwaoka
,,	,,	16	33	,,	47	5	,,	,,
,,	,,	17	9	,,	46	48	,,	,,
,,	,,	19	9	,,	47	22	Turuta	Turuta
,,	,,	21	4	,,	47	25	Iwaoka	,,
Mean				4°	47′	3″		

$\delta = 4°\ 47'.05$
Reduction to 1895.0 = 1.57
,, ,, sea level = 0.00
$\delta = 4°\ 48'.6$

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	11th	10h	34m	3	49°	27′.2	Uziie	Turuta
,,	,,	14	57	—	,,	26.4	Iwaoka	Iwaoka
,,	,,	20	33	3	,,	26.9	Turuta	Turuta
Mean					49°	26′.8		

$\theta = 49°\ 26'.8$
Reduction to 1895.0 = −1.83
,, ,, sea level = 0.00
$\theta = 49°\ 25'.0$

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Sept.	11th	8h	33m	0.30097	451.40	30.2C	s 5.7060	28.9C	6°27′ 7″.5	14 43′30″.0	31.4C	Uziie Turuta	Turuta Uziie
,,	,,	13	11	0.30168	419.21	34.9	5.7105	35.2	6 25 12.5	14 39 35.0	34.5	,, Iwaoka	,, Turuta
,,	,,	18	27	0.30128	451.87	27.7	5.6986	28.9	6 28 8.8	14 46 20.6	26.5	,,	Iwaoka
Mean				0.30131									

$H = 0.30131$
Reduction to 1895.0 = 1765
,, ,, sea level = 000
$H = 0.30149$

90. TAKEHU.

Aza Yokodoi embankment. (武生町字横土居堤防)

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	12th	17h	10m	4°	50′	17″	Iwaoka	Uziie
,,	,,	18	37	,,	50	59	,,	Turuta
,,	,,	20	30	,,	51	20	Uziie	,,
,,	13th	3	29	,,	50	30	Iwaoka	Iwaoka
,,	,,	6	26	,,	48	11	,,	,,
,,	,,	7	11	,,	47	32	Uziie	Turuta
,,	,,	8	36	,,	47	0	Turuta	Uziie
,,	,,	10	45	,,	52	11	Uziie	,,
,,	,,	11	10	,,	53	25	,,	,,
,,	,,	12	17	,,	55	52	,,	Iwaoka
,,	,,	14	3	,,	55	37	,,	,,
,,	,,	15	2	,,	53	8	,,	,,
Mean				4°	51′	15″		

$\delta = 4°\ 51'.27$

Reduction to 1895.0 = 1.63

,, ,, sea level = 0.00

$\delta = 4°\ 52'.9$

DIP (θ)

Observations ef the Wast Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept	12th	19h	56m	3	49°	27′.4	Turuta	Uziie
,,	13th	10	2	3	,,	31.0	Uziie	,,
,,	,,	15	29	3	,,	20.8	Iwaoka	,,
Mean					49°	29′.7		

$\theta = 49°\ 29'.7$

Reduction to 1895.0 = -1.82

,, ,, sea level = 0.00

$\theta = 49°\ 27'.9$

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Sept. 12th 18h 9m	0.30311	453.97	22.0C	s 5.6661	22.2C	6°27′22″.5	14°44′ 5″.0	21.7C	Iwaoka	Turuta
,, 13th 8 3	0.30306	455.25	18.4	5.6566	17.8	6 28 10.0	14 45 53.0	19.0	Uziie	,,
,, ,, 13 29	0.30345	451.25	29.1	5.6799	29.1	6 24 18.8	14 37 10.6	29.1	,, Iwaoka	Iwaoka Uziie
Mean	0.30221									

$H = 0.30321$

Reduction to 1895.0 = 1722

,, ,, sea level = 52

$H = 0.30339$

91. ONO.

Ōnomati 151. Aza Nisidōyasiki No 1. (大野町百五十一字西堂屋敷一番)

DECLINATION (δ)

Observations of the West Party, 1893

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	14th	16h	38m	4°	49′	40″	Uziie	Turuta
,,	,,	17	21	,,	47	37	Iwaoka	,,
,,	,,	19	6	,,	50	16	Uziie	,,
,,	,,	21	17	,,	49	40	,,	,,
,,	,,	22	26	,,	49	42	Turuta	,,
,,	15th	3	23	,,	47	13	,,	,,
,,	,,	5	31	,,	47	15	,,	,,
,,	,,	7	2	,,	45	43	,,	,,
,,	,,	7	26	,,	45	44	Iwaoka	,,
,,	,,	8	49	,,	45	20	Uziie	Iwaoka
,,	,,	9	1	,,	45	39	,,	,,

To be continued

(Continued)

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	15th	11h	7m	4	51′	15″	Iwaoka	Uziie
,,	,,	11	50	,,	53	24	,,	,,
,,	,,	12	14	,,	53	25	,,	,,
,,	,,	12	42	,,	53	38	,,	,,
,,	,,	14	33	,,	53	3	,,	,,
,,	,,	16	56	,,	48	50	,,	Turuta
Mean				4°	49′	12″		

δ = 4 49′.20
Reduction to 1895.0 = 1.68
,, ,, sea level = −0.02
δ = 4° 50′.9

DIP. (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept	14th	18h	38m	3	49	53′.3	Iwaoka	Turuta
,,	15th	10	31	--	,,	58.7	Uziie	Iwaoka
,,	,,	15	58	3	,,	59.3	Turuta	Turuta
Mean					49°	58′.1		

θ = 49 58′.1
Reduction to 1895.0 = −1.69
,, ,, sea level = −0.02
θ = 49 53′.35

HORIZONTAL INTENSITY (*H*)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 14th 20h 21m	0.29866	453.37	22.7 C	5.7119 s	22.8 C	6°32′32″.5	14 56′20″.0	22.5 C	Uziie Turuta	Turuta Uziie
,, 15th 8 20	0.29863	454.05	21.4	5.7071	21.3	6 33 2.5	14 57 25.0	21.6	Iwaoka Uziie	Turuta Iwaoka
,, ,, 13 57	0.29900	451.88	25.6	5.7630	24.7	6 30 47.5	14 52 44.4	23.6	,, Iwaoka	,, Uziie
Mean	0.29876									

H = 0.29876
Reduction to 1895.0 = 1620
,, ,, sea level = 258
H = 0.29895

92. SIOYA.

DECLINATION (δ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	16th	16h	58m	5	2′	18″	Iwaoka	Uziie
,,	,,	17	36	,,	1	47	,,	,,
,,	,,	20	2	,,	2	1	Turuta	Iwaoka
,,	,,	22	32	,,	1	53	Iwaoka	Uziie
,,	17th	0	35	,,	1	20	Uziie	,,
,,	,,	1	55	,,	1	11	Iwaoka	Iwaoka
,,	,,	5	8	4	59	24	,,	,,
,,	,,	7	32	,,	59	47	,,	,,
,,	,,	9	28	5	1	25	Uziie	Turuta
,,	,,	10	6	,,	1	16	Turuta	Uziie
,,	,,	10	23	,,	2	27	Iwaoka	Turuta
,,	,,	12	4	,,	5	27	Uziie	Uziie
,,	,,	12	40	,,	5	35	Turuta	Iwaoka
,,	,,	13	53	,,	4	56	Iwaoka	Turuta
,,	,,	14	25	,,	4	48	Turuta	Iwaoka
,,	,,	16	16	,,	2	36	,,	,,
Mean				5	1′	46″		

δ = 5 1′.77
Reduction to 1895.0 = 1.81
,, ,, sea level = 0.00
δ = 5° 3′.6

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 17th 6h 6m	3	50 18′.1	Uziie	Turuta Uziie
,, ,, 11 30	3	,, 19.9	Turuta	Turuta Uziie
,, ,, 15 47	3	,, 19.8	Iwaoka	Iwaoka
Mean		50 19.3		

θ = 50 19.3
Reduction to 1895.0 = −2.06
,, ,, sea level = 0.00
θ = 50 17.2

HORIZONTAL INTENSITY (H)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 16th 19h 10m	0.29687	453.69	22.0C	s 5.7268	22.1C	6 35′ 7″.5	15 2′10″.6	21.9C	Turuta Iwaoka	Iwaoka Turuta
,, 17th 9 0	0.29651	452.89	24.3	5.7345	24.0	6 34 37.5	15 0 50.0	21.5	Uziie Turuta	,, Uziie
,, ,, 13 22	0.29724	452.28	24.3	5.7326	24.7	6 33 45.0	14 59 33.4	23.9	Iwaoka Turuta	Turuta Iwaoka
Mean	0.29687									

H = 0.29687
Reduction to 1895.0 = 1703
,, ,, sea level = 000
H = 0.29704

93. KANAZAWA.

Parade ground (陸軍練兵場)

DECLINATION (δ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 18th 16h 49m	5 2′ 49″	Uziie	Turuta
,, ,, 17 8	,, 2 57	Iwaoka	,,
,, ,, 18 53	,, 1 10	Uziie	,,
,, ,, 20 4	,, 3 7	,,	Iwaoka
,, ,, 23 33	,, 2 4	,,	Uziie
,, 19th 0 51	,, 1 30	,,	,,
,, ,, 5 43	,, 1 7	,,	,,
,, ,, 6 41	,, 0 45	,,	,,
,, ,, 8 45	4 59 12	Turuta	Iwaoka
,, ,, 10 14	5 0 59	,,	,,
,, ,, 11 38	,, 4 53	,,	,,
,, ,, 12 14	,, 6 15	Iwaoka	Turuta
,, ,, 12 10	,, 5 58	Turuta	Iwaoka
,, ,, 13 59	,, 5 33	Iwaoka	Turuta
,, ,, 15 39	,, 3 55	Uziie	Uziie
Mean	5 2′ 24″		

δ = 5 2.40
Reduction to 1895.0 = 1.83
,, ,, sea level = 0.00
δ = 5 4.23

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 18th 18h 22m	3	50 43′.4	Turuta	Iwaoka
,, 19th 9 44	3	,, 49.0	Iwaoka	Turuta
,, ,, 10 54	3	,, 47.9	Turuta	,,
,, ,, 15 9	3	,, 46.9	Uziie	Uziie
Mean		50 47.7		

θ = 50 47.7
Reduction to 1895.0 = −1.94
,, ,, sea level = 0.00
θ = 50′ 45.8

HORIZONTAL INTENSITY (H)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^2.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Sept. 18th 19h 49m	0.29612	453.18	22.3C	s 5.7380	22.7C	6 35′57″.5	15 1′26″.2	21.9C	Iwaoka Uziie	Turuta ,,
,, 19th 7 51	0.29619	452.47	24.8	5.7398	24.3	6 34 46.9	15 1 35.0	25.2	,, Iwaoka	,, ,,
,, ,, 13 28	0.29572	450.89	31.0	5.7560	31.5	6 32 50.6	14 51 51.9	30.5	Turuta Iwaoka	Iwaoka Turuta
Mean	0.29601									

$H=$ 0.29601
Reduction to 1895.0= 1594
,, ,, sea level= 000
$H=$ 0.29617

94. NANAO.

Aza Dezaki (字 出 崎)

DECLINATION (H)
Observations of the West Party, 1893

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	20th	23h	46m	5	8′	16″	Iwaoka	Turuta
,,	21st	2	27	,,	8	23	Turuta	,,
,,	,,	6	1	,,	8	3	,,	,,
,,	,,	7	43	,,	7	59	,,	,,
,,	,,	8	25	,,	7	35	,,	,,
,,	,,	9	56	,,	8	45	,,	,,
,,	,,	11	14	,,	11	37	Uziie	Uziie
,,	,,	11	37	,,	9	44	Iwaoka	,,
,,	,,	12	11	,,	10	4	,,	,,
,,	,,	13	2	,,	11	37	,,	Turuta
,,	,,	14	11	,,	10	16	Turuta	Iwaoka
,,	,,	15	38	,,	9	22	Iwaoka	Turuta
,,	,,	15	52	,,	9	34	,,	,,
,,	,,	16	20	,,	9	18	,,	,,
,,	,,	16	32	,,	8	46	,,	,,
,,	,,	18	16	,,	8	24	,,	,,
,,	,,	18	30	,,	8	52	,,	,,
,,	,,	18	59	,,	8	42	,,	,,
,,	,,	19	12	,,	8	20	,,	,,
,,	,,	21	8	,,	7	37	,,	,,
,,	,,	21	10	,,	8	27	,,	,,
,,	22nd	10	59	,,	8	12	,,	,,
,,	,,	12	4	,,	9	35	,,	,,
,,	,,	12	54	,,	10	11	,,	,,
,,	,,	14	29	,,	11	29	,,	,,
,,	,,	14	53	,,	10	10	,,	,,
,,	,,	15	24	,,	10	19	,,	,,
,,	,,	16	59	,,	9	5	,,	,,
Mean				5°	9′	6″		

δ=5° 9′.09
Reduction to 1895.0= 2.09
,, ,, sea level= 0.06
δ=5° 11′.1

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	21st	10h	43m	3	51	11.9	Uziie	Uziie
,,	,,	15	13m	3	,,	10.0	Iwaoka	Turuta
,,	,,	20	32	---	,,	11.6	Turuta	Iwaoka
Mean					51	11′.2		

θ=51 11′.2
Reduction to 1895.0= −2.18
,, ,, sea level= 0.00
θ=51° 9′.0

HORIZONTAL INTENSITY. (H)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Sept. 21st 9h 3m	0.29509	452.27	24.6C	5.7537	25.0C	6°36′28″.8	15°5′41″.9	24.3C	Uziie	Turuta
,, ,, 13 45	0.29516	451.00	29.6	5.7625	30.4	6 35 8.8	15 2 21.9	23.8	Turuta Iwaoka	Iwaoka Turuta
,, ,, 18 31	0.29515	452.85	23.2	5.7498	23.5	6 36 53.8	15 6 35.0	22.8	,, Turuta	,, Iwaoka
Mean	0.29513									

$H=$ 0.29513
Reduction to 1895.0 = 1498
,, ,, sea level = 000
$H=$ 0.29528

95. WAZIMA.

Kawaimati Rokuaza (河井町六字)

DECLINATION (δ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	24th	1h	45m	5°	12′	11″	Iwaoka	Iwaoka
,,	,,	1	54	,,	12	37	,,	,,
,,	,,	6	37	,,	11	51	,,	,,
,,	,,	7	37	,,	11	5	Turuta	,,
,,	,,	8	3	,,	10	27	,,	,,
,,	,,	9	27	,,	11	1	Iwaoka	Turuta
,,	,,	11	25	,,	13	29	Turuta	,,
,,	,,	12	32	,,	15	20	,,	,,
,,	,,	13	17	,,	15	40	,,	,,
,,	,,	14	42	,,	15	30	Iwaoka	,,
,,	,,	17	14	,,	13	17	,,	Iwaoka
,,	,,	18	35	,,	13	20	,,	,,
,,	,,	20	45	,,	13	23	,,	Turuta
,,	,,	23	35	,,	13	0	Turuta	,,
,,	25th	9	15	,,	9	31	,,	,,
,,	,,	10	25	,,	11	5	,,	,,
,,	,,	12	22	,,	13	50	,,	,,
,,	,,	13	33	,,	15	10	Iwaoka	Iwaoka
,,	,,	13	46	,,	14	39	,,	,,
,,	,,	14	30	,,	15	3	,,	Turuta
,,	,,	14	46	,,	15	24	,,	,,
,,	,,	15	32	,,	15	5	Turuta	Iwaoka
,,	,,	15	53	,,	14	10	,,	,,
,,	,,	16	42	,,	13	40	,,	Turuta
,,	,,	17	6	,,	13	58	,,	,,
,,	,,	18	47	,,	12	59	Iwaoka	Iwaoka
,,	,,	19	10	,,	13	8	,,	Turuta
,,	,,	20	50	,,	13	2	,,	,,
,,	,,	21	5	,,	13	10	,,	,,
Mean				5	13′	7″		

δ = 5° 13′.2
Reduction to 1895.0 = 2.23
,, ,, sea level = 0.00
δ = 5° 15′.4

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 24th 10h 41m	3	51° 33′.7	Turuta	Turuta
,, ,, 17 3	—	,, 34.3	Iwaoka	Iwaoka
,, ,, 22 38	3	,, 35.8	Turuta	Turuta
Mean		51° 34′.3		

θ = 51° 34′.6
Reduction to 1895.0 = −2.41
,, ,, sea level = 0.00
θ = 51° 32′.2

HORIZONTAL INTENSITY (*H*)

Observations of the Wazima Party, 95.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vib2.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	24th	8h	56m	0.29173	453.10	23.5 C	5.7811 s	23.3 C	6 41′ 30″.0	15 17′ 0″.0	23.7 C	Iwaoka, Turuta	Turuta, Iwaoka
,,	,,	14	9	0.29198	452.05	25.0	5.7850	24.9	6 40 18.8	15 14 29.4	25.2	,, Iwaoka	,, Turuta
,,	,,	20	10	0.29198	452.17	24.5	5.7848	24.7	6 40 10.0	15 15 35.0	24.3	,, Turuta	,, Iwaoka
Mean				0.29190									

H = 0.29190
Reduction to 1895.0 = 152?
,, ,, sea level = 000
H = 0.29205

96. TOYAMA.

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	28th	9h	3m	5	2′	53″	Turuta	Iwaoka
,,	,,	10	57	,,	7	5	Iwaoka	Turuta
,,	,,	12	14	,,	8	45	Turuta	,,
,,	,,	12	51	,,	9	20	Iwaoka	,,
,,	,,	14	43	,,	8	45	,,	,,
,,	,,	14	59	,,	7	41	,,	,,
,,	,,	16	53	,,	4	41	,,	,,
,,	,,	17	12	,,	5	43	,,	,,
,,	,,	18	13	,,	6	14	,,	,,
,,	,,	18	29	,,	5	15	,,	,,
,,	,,	20	35	,,	4	8	Turuta	Iwaoka
,,	,,	20	52	,,	5	9	,,	,,
,,	,,	23	15	,,	4	57	,,	Turuta
,,	29th	6	0	,,	3	4	,,	,,
,,	,,	6	57	,,	1	54	Iwaoka	,,
,,	,,	8	37	,,	0	57	,,	,,
,,	,,	9	20	,,	1	14	,,	,,
,,	,,	10	54	,,	5	53	,,	,,
,,	,,	11	18	,,	6	46	,,	,,
,,	,,	12	9	,,	8	31	,,	,,
,,	,,	12	15	,,	8	25	Turuta	,,
,,	,,	13	54	,,	7	44	Iwaoka	,,
,,	,,	14	22	,,	7	23	,,	,,
,,	,,	16	22	,,	4	34	,,	,,
,,	,,	17	19	,,	4	45	,,	,,
,,	,,	18	57	,,	5	18	,,	,,
,,	,,	21	37	,,	5	3	,,	,,
Mean				5°	4′	35″		

δ = 5 4′.30
Reduction to 1895.0 = 1.85
,, ,, sea level = 0.00
δ = 5° 6′.5

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	28th	10h	22m	3	50	54.5	Turuta	Turuta ,,
,,	,,	16	25	2	,,	53.1	Iwaoka	Iwaoka
,,	,,	22	30	3	,,	47.7	Turuta	Turuta
,,	29th	10	24	3	,,	49.1	,,	,,
,,	,,	15	37	3	,,	46.4	,,	,,
,,	,,	20	58	3	,,	47.0	Iwaoka	,,
Mean					50	49.6		

θ = 50° 49′.6
Reduction to 1895.0 = −1.61
,, ,, sea level = 0.00
θ = 50 48′.0

HORIZONTAL INTENSITY (*H*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t	Observer	Recorder
Sept. 28th 14h 17m	0.29311	450.34	29.2C	s 5.7880	30.5C	6 37′ 12″.5	15° 8′ 37″.5	27.8C	Iwaoka Turuta	Turuta Iwaoka
,, ,, 20 3	0.29315	452.92	22.1	5.7691	22.7	6 39 45.0	15 13 12.5	21.5	,, Iwaoka	,, Turuta
,, 29th 8 1	0.29314	452.67	23.1	5.7680	22.2	6 39 7.5	15 11 16.9	23.9	,, Turuta	,, Iwaoka
,, ,, 13 24	0.29351	450.81	28.3	5.7788	28.8	6 37 16.9	15 7 30.6	27.8	Iwaoka Turuta	Turuta Iwaoka
,, ,, 18 27	0.29325	452.68	21.6	5.7682	22.1	6 39 31.2	15 12 52.5	21.1	Iwaoka Turuta	Turuta Iwaoka
Mean	0.29323									

H = 0.29323
Reduction to 1895.0 = 13 81
,, ,, sea level = 13
H = 0.29337

97. MOZUMI.

DECLINATION (δ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	1st	16h	57m	1	56′	10″	Iwaoka	Turuta
,,	,,	17	39	,,	56	23	,,	,,
,,	,,	19	19	,,	56	20	,,	,,
,,	,,	20	0	,,	56	6	,,	,,
,,	,,	23	25	,,	54	48	,,	Iwaoka
,,	2nd	5	40	,,	53	31	,,	,,
,,	,,	6	15	,,	53	39	,,	,,
,,	,,	8	22	,,	49	42	Turuta	,,
,,	,,	8	35	,,	49	30	Iwaoka	Turuta
,,	,,	9	13	,,	48	27	Turuta	Iwaoka
,,	,,	10	47	,,	54	29	,,	,,
,,	,,	11	35	,,	57	34	Iwaoka	Turuta
,,	,,	12	27	,,	59	25	,,	Iwaoka
,,	,,	12	46	,,	58	18	,,	,,
,,	,,	13	14	,,	58	4	,,	Turuta
,,	,,	13	24	,,	58	36	,,	,,
,,	,,	15	5	,,	58	0	Turuta	,,
,,	,,	15	20	,,	56	0	Iwaoka	,,
,,	,,	16	54	,,	53	55	,,	Iwaoka
,,	,,	17	5	,,	55	0	,,	,,
,,	,,	19	24	,,	55	56	,,	,,
,,	,,	19	43	,,	55	27	,,	,,
,,	,,	20	40	,,	54	56	,,	,,
,,	,,	20	54	,,	54	44	,,	,,
,,	3rd	6	33	,,	56	14	,,	,,
,,	,,	6	53	,,	53	48	,,	,,
,,	,,	7	20	,,	51	58	,,	,,
,,	,,	7	42	,,	51	1	,,	,,
Mean				1	54′	51″		

δ = 1° 54′.85
Reduction to 1895.0 = 1.79
,, ,, sea level = 0.03
δ = 1 56′.6

DIP (θ)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ			Observer	Recorder
Oct.	1st	22h	17m	3	50°	2′.3		Turuta	Turuta
,,	2nd	10	23	3	,,	0.7		Iwaoka	,,
,,	,,	16	24	—	,,	4.2		Turuta	Iwaoka
Mean					50	2′.4			

θ = 50 2′.4
Reduction to 1895.0 = −1.50
,, ,, sea level = −0.03
θ = 50 0′.9

HORIZONTAL INTENSITY (H)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Oct. 1st 18 37m	0.29752	452.44	23°.0 C	5.7289	23°.1 C	6°33′13″.1	14°57′55″.0	22°.9 C	Iwaoka / Turuta	Turuta / Iwaoka
„ 2nd 7 42	0.29787	453.32	19.7	5.7190	19.6	6 33 48.1	14 59 43.1	19.9	„ / Iwaoka	„ / Turuta
„ „ 13 50	0.29775	453.45	19.6	5.7207	20.0	6 34 8.8	15 0 18.1	19.4	„ / Turuta	„ / Iwaoka
„ „ 18 49	0.29766	454.22	18.3	5.7153	18.6	6 34 36.2	15 1 2.5	17.9	„ / Iwaoka	„ / Turuta
Mean	0.29770									

H = 0.29770
Reduction to 1895.0 = 1362
„ „ sea level = 520
H = 0.29789

98. MIKKAITI.

Mikura cemetery (三日市町大字三日市村字御藏共有墓地)

DECLINATION (δ)
Observations of the West Party, 1893.

Date and Hour. (Mean Local Time.)				δ			Observer	Recorder
Oct.	5th	10h	45m	5°	5′	20″	Turuta	Iwaoka
„	„	11	0	„	5	7	Iwaoka	Turuta
„	„	11	21	„	5	13	„	„
„	„	11	35	„	7	0	„	„
„	„	12	4	„	8	2	Turuta	„
„	„	12	56	„	8	50	Iwaoka	Iwaoka
„	„	13	21	„	9	40	„	Turuta
„	„	14	46	„	10	35	„	„
„	„	15	4	„	10	16	„	„
„	„	16	35	„	9	22	Turuta	„
„	„	16	48	„	9	7	Iwaoka	„
„	„	17	35	„	8	33	Turuta	Iwaoka
„	„	17	52	„	7	0	Iwaoka	Turuta
„	„	18	7	„	7	11	„	„
„	„	18	20	„	9	18	„	„
„	„	19	56	„	8	7	„	„
„	„	21	33	„	7	13	„	„
„	6th	0	8	„	6	58	Turuta	„
„	„	5	14	„	7	10	„	„
„	„	6	2	„	7	24	„	„
„	„	6	45	„	7	16	„	„
„	„	7	11	„	8	18	„	„
„	„	8	32	„	5	52	Iwaoka	Iwaoka
„	„	9	4	„	6	17	„	Turuta
„	„	11	0	„	9	7	Turuta	Iwaoka
„	„	12	2	„	10	12	Iwaoka	Turuta
„	„	13	35	„	10	48	„	Iwaoka
„	„	14	11	„	10	8	„	„
„	„	15	28	„	8	54	„	Turuta
„	„	16	9	„	8	51	„	„
„	„	16	38	„	9	53	„	„
„	„	17	6	„	9	32	Turuta	Iwaoka
„	„	17	17	„	8	26	Iwaoka	Turuta
Mean				4	8′	5″		

δ = 5° 8′.08
Reduction to 1895.0 = 1.93
„ „ sea level = 0.00
δ = 5° 10′.01

DIP (θ)
Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Oct.	5th	22h	59m	—	50	36′.4	Iwaoka	Iwaoka
„	6th	10	22	3	„	43.1	Turuta	Turuta
„	„	11	36	3	„	42.2	Iwaoka	„
„	„	15	35	—	„	44.5	Turuta	„
Mean					50°	41′.6		

θ = 50° 41′.6
Reduction to 1895.0 = −1.61
„ „ sea level = 0.00
θ = 50

HORIZONTAL INTENSITY (*H*)

Observations of the West Party, 1893.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Oct. 5th 14h 21m	0.29470	454.02	17°.7C	5.7463 s	18°.3C	6°38′35″.0	15°10′17″.5	17.2C	Iwaoka / Turuta	Turuta / Iwaoka
,, ,, 19 19	0.29450	455.22	14.8	5.7399	14.8	6 39 49.6	15 12 54.4	14.7	,, / Iwaoka	,, / Turuta
,, 6th 8 3	0.29477	454.42	16.1	5.7409	15.5	6 38 39.4	15 10 36.9	16.7	,, / Turuta	,, / Iwaoka
,, ,, 13 3	0.29493	452.84	21.1	5.7520	21.7	6 37 20.6	15 7 11.2	20.5	,, / Iwaoka	,, / Turuta
Mean	0.29472									

H = 0.29472
Reduction to 1895.0 = 13.2
,, ,, sea level = 0.0
H = 0.29485

99. ABUTA.

Coast, back side of Abuta office (虻田村戶長役場裏海岸)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July. 1st 18h 33.0m	6° 10′ 4″	Tanakadate	Midzusima
,, ,, 20 27.1	,, 9 16	,,	,,
,, 2nd 1 0.0	,, 8 59	,,	Tanakadate
,, ,, 4 3.2	,, 8 14	,,	,,
,, ,, 5 43.3	,, 6 23	Midzusima	Midzusima
,, ,, 7 46.8	,, 4 13	,,	Tanakadate
,, ,, 8 17.8	,, 5 0	Tanakadate	Midzusima
,, ,, 9 54.0	,, 9 33	,,	,,
,, ,, 10 57.5	,, 10 59	Midzusima	Tanakadate
,, ,, 12 24.1	,, 14 53	,,	Midzusima
,, ,, 13 30.0	,, 15 41	,,	,,
,, ,, 14 20.0	,, 14 24	Tanakadate	,,
,, ,, 15 17.7	,, 13 18	Midzusima	Tanakadate
,, ,, 16 11.7	,, 12 46	Tanakadate	Midzusima
,, ,, 17 39.1	,, 10 46	,,	,,
,, ,, 18 35.0	,, 10 20	,,	,,
Mean	6° 9′ 35″		

δ = 6° 9′.58
Reduction to 1895.0 = 1.52
,, ,, sea level = 0.00
δ = 6° 11′.1

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 1st 18h 8.3m	—	56° 49′.3	Midzusima	Tanakadate
,, 2nd 9 19.0	2	,, 43.5	Tanakadate	Midzusima
,, ,, 15 44.0	2	,, 45.2	Midzusima	Tanakadate
Mean		56° 46′.0		

θ = 56° 46′.0
Reduction to 1895.0 = −1.41
,, ,, sea level = 0.00
θ = 56° 44′.6

HORIZONTAL INTENSITY (H)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_0	Observer	Recorder
July. 1st 10h 52m	0.26676	458.16	26.1C	s 5.9624	26.1C	7°25′36″.2	16°54′25″.0	26.2C	Midzusi a / Tanakadate	Tanakadate / Midzusima
,, 2nd 7 26	0.26744	459.46	23.1	5.9457	23.2	7 25 52.5	16 55 16.2	23.5	,, / Midzusima	,, / Tanakadate
,, ,, 9 54	0.26693	457.36	28.8	5.9655	28.6	7 24 18.8	16 51 15.0	28.9	Tanakadate	Midzusima
,, ,, 12 51	0.26664	457.73	28.5	5.9683	29.2	7 25 26.3	16 53 51.3	27.9	Midzusima	Tanakadate
,, ,, 14 51	0.26650	458.53	24.3	5.9648	25.1	7 26 34.0	16 56 24.0	23.6	Tanakadate / Midzusima	Midzusima / Tanakadate
Mean	0.26685									

$H=$ 0.26685
Reduction to 1895.0 = 2.38
,, ,, sea level = 0.00
$H=$ 0.26687

100. OSYAMANBE.

Osyamanbe Syōgaku (長萬部小學校)

DECLINATION (δ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July. 6th 14h 19.2m	5° 55′ 3″	Tanakadate	Midzusima
,, ,, 15 59.5	,, 54 0	Midzusima	Tanakadate
,, ,, 17 44.2	,, 48 53	Tanakadate	Midzusima
,, 18 39.6	,, 49 2	Midzusima	Tanakadate
,, ,, 19 59.0	,, 49 23	Tanakadate	Midzusima
,, ,, 20 48.1	,, 49 5	Midzusima	Tanakadate
,, ,, 23 41.4	,, 50 18	,,	,,
,, 7th 4 52.0	,, 46 52	,,	,,
Mean	5 50′ 2″		

$\delta = 5°$ 50′.03
Reduction to 1895.0 = 1.54
,, ,, sea level = 0.00
$\delta = 5°$ 51′.6

DIP (θ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 4th 11h 16.7m	2	56° 19′.9	Tanakadate	Midzusima
,, ,, 17 58.9	—	,, 19.0	Midzusima	Tanakadate
,, 6th 15 2.6	2	,, 19.4	,,	Midzusima
,, 7th 10 24.0	2	,, 18.0	Tanakadate	Tanakadate
Mean		56° 19′.1		

$\theta = 56°$ 19′.1
Reduction to 1895.0 = −1.47
,, ,, sea level = 0.00
$\theta = 56°$ 17′.6

HORIZONTAL INTENSITY (H)
(* *Value deduced from Vibration only by assuming Value of M*)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_0	Observer	Recorder
July. 4th 9h 43m	0.27200	460.54	19.1C	s 5.8888	19.0C	7°19′ 9″.4	16°38′58″.8	19.2C	Midzusima / Tanakadate	Tanakadate / Midzusima
,, ,, 13 34	0.27227	460.63	21.6	5.8852	21.4	7 18 6.3	16 35 37.5	21.7	,, / Midzusima	,, / Tanakadate
,, ,, 17 9	0.27258	459.43	23.6	5.8908	23.8	7 17 10.0	16 34 22.5	23.3	Tanakadate	Midzusima
,, 6th 17 25	*0.27275	460.10	21.3	5.9116	21.7	(7 17 39.4	16 36 45.3	21.3)	Midzusima / Tanakadate	Tanakadate / Midzusima
,, ,, 20 42	0.27240	460.48	17.2	5.8855	17.5	7 18 51.3	16 38 41.3	17.0	,, / Midzusima	,, / Tanakadate
,, 7th 9 16	0.27211	460.45	18.7	5.8848	18.7	7 18 23.3	16 37 23.8	18.7	,, / Tanakadate	,, / Midzusima
Mean	0.27240									

$H=$ 0.27240
Reduction to 1895.0 = 2.75
,, ,, sea level = 0.00
$H=$ 0.27213

101. SUTTU.

Suttu office (壽都村戸長役場)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July.	8^{th}	6^h	17.7^m	5	55′	27″	Tanakadate	Midzusima
,,	,,	9	21.6	,,	55	10	,,	Tanakadate
,,	,,	11	5.0	,,	56	56	,,	,,
,,	,,	13	20.1	6	5	30	,,	,,
,,	,,	15	33.2	,,	2	10	Midzusima	,,
,,	,,	18	2.1	,,	1	21	Tanakadate	Midzusima
,,	,,	19	1.3	,,	1	26	,,	,,
,,	,,	21	23.7	,,	2	7	,,	,,
,,	9^{th}	3	28.3	,,	0	26	,,	,,
,,	,,	6	15.8	5	58	52	,,	Tanakadate
,,	,,	7	23.2	,,	57	21	,,	,,
,,	,,	8	41.1	,,	57	16	Midzusima	,,
,,	,,	10	8.5	,,	56	0	,,	Midzusima
,,	,,	11	50.7	6	2	31	,,	,,
							,,	,,
Mean				6°	0′	41″		

$\delta = 6\ \ 0'.68$
Reduction to 1895.0 = 1.60
,, ,, sea level = 0.00
$\delta = 6\ \ 2'.3$

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July.	8^{th}	7^h	59.7^m	2	56	44′.2	Midzusima	Midzusima
,,	,,	17	35.0	—	..	44.3	Tanakadate	,,
,,	9^{th}	11	42.6	2	..	45.1	Midzusima	Tanakadate
Mean					56	44′.9		

$\theta = 56\ \ 44'.9$
Reduction to 1895.0 = −1.65
,, ,, sea level = 0.00
$\theta = 56°\ \ 43'.2$

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July.	8^{th}	12^h	40^m	0.27003	460.70	17.7C	s 5.9090	17.6C	7°22′32″.5	16 16′51″.3	17.8C	Tanakadate	Tanakadate
,,	,,	18	38	0.26989	462.47	15.4	5.8900	15.5	7 23 0.0	16 17 41.3	15.1	{ Midzusima { Tanakadate	{ ,, { Miduzsima
,,	9^{th}	8	17	0.26972	460.42	17.5	5.9141	17.4	7 22 48.8	16 17 33.8	17.6	{ ,, { Midzusima	{ ,, { Tanakadate
Mean				0.26988									

$H = 0.26988$
Reduction to 1895.0 = 3.01
,, ,, sea level = 0.00
$H = 0.26991$

102. IWANAI.

Prefecture (郡役所)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July.	14th	11h	5.7m	6	25′	8″	Tanakadate	Midzusima
,,	,,	11	24.2	,,	25	13	,,	,,
,,	,,	12	24.9	,,	26	57	,,	,,
,,	,,	13	45.1	,,	28	32	,,	,,
,,	,,	14	55.3	,,	27	38	Midzusima	Tanakadate
,,	,,	16	16.3	,,	26	6	Tanakadate	Midzusima
,,	,,	18	29.2	,,	23	38	,,	Tanakadate
,,	,,	19	26.0	,,	24	5	,,	Midzusima
,,	,,	20	51.5	,,	24	14	Midzusima	Tanakadate
,,	,,	22	13.7	,,	24	50	,,	Midzusima
,,	,,	23	33.8	,,	25	13	,,	,,
,,	12th	4	44.9	,,	21	30	,,	,,
,,	,,	5	49.6	,,	21	11	,,	,,
,,	,,	8	36.0	,,	21	20	Tanakadate	Tanakadate
,,	,,	9	13.2	,,	21	11	,,	,,
,,	,,	10	56.9	,,	24	0	,,	,,
Mean				6	23′	50″		

δ = 6° 23.83

Reduction to 1895.0 = 1.56

,, ,, sea level = 0.00

δ = 6 25.4

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Juyl.	11th	12h	2.0m	2	56	58.0	Midzusima	Tanakadate
,,	,,	18	40.0	2	,,	49.0	Tanakadate	,,
,,	,,	23	11.1	—	,,	53.7	Midzusima	Midzusima
,,	12th	6	48.4	2	,,	54.6	Tanakadate	Tanakadate
Mean					56	53.8		

θ = 56° 53.8

Reduction to 1895.0 = − 1.53

,, ,, sea level = 0.00

θ = 56 52.3

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July.	11th	13h	22m	0.26796	459.10	23.3 C	5.9410 s	23.8 C	7 24′34″4	16 51′43″8	22.9 C	Midzusima Tanakadate	Tanakadate Midzusima
,,	,,	20	28	0.26807	460.07	20.1	5.9359	20.4	7 25 12.5	16 53 0.0	19.8	,, Midzusima	,, Tanakadate
,,	12th	10	22	0.26757	458.47	24.6	5.9521	24.9	7 24 18.8	16 50 49.0	24.2	Tanakadate	,,
Mean				0.26787									

H = 0.26787

Reduction to 1895.0 = 2.55

,, ,, sea level = 0.00

H = 0.26790

103. YOBETU.

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July.	13th	14h	31.7m	6°	4′	13″	Tanakadate	Midzusima
,,	,,	16	2.8	,,	3	22	,,	,,
,,	,,	17	10.8	5	59	7	Midzusima	Tanakadate
,,	,,	17	20.6	,,	59	0	,,	,,
,,	,,	18	20.4	,,	58	31	Tanakadate	Midzusima
,,	,,	19	5.3	,,	59	14	,,	Tanakadate
,,	,,	20	7.1	,,	59	52	,,	,,
,,	,,	22	14.6	,,	59	56	,,	,,
,,	14th	4	49.8	,,	59	3	,,	,,
,,	,,	2	43.0	,,	57	54	,,	,,
,,	,,	6	24.0	,,	54	55	,,	,,
,,	,,	8	0.0	,,	54	39	Midzusima	Midzusima
,,	,,	8	17.2	,,	54	16	,,	,,
,,	,,	9	58.9	,,	57	16	,,	,,
,,	,,	10	72.6	,,	58	23	,,	,,
,,	,,	11	42.5	,,	59	25	,,	,,
,,	,,	12	17.6	6	2	56	Tanakadate	Tanakadate
,,	,,	13	54.1	,,	1	26	Midzusima	,,
,,	,,	15	2.8	,,	6	10	Tanakadate	Midzusima
Mean				5	58′	15″		

δ = 5 58′.75
Reduction to 1895.0 = 1.62
,, ,, sea level = −0.01
δ = 6 0′.4

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July.	13th	15h	19.0m	2	57	0′.8	Midzusima	Tanakadate
,,	14th	9	39.5	—	,,	0.0	,,	Midzusima
,,	,,	13	31.2	2	56	57.7	Tanakadate	,,
Mean					56°	59′.5		

θ = 56° 59′.5
Reduction to 1895.0 = 1.69
,, ,, sea level = 0.01
θ = 56 57′.8

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 13th 17h 3m	0.27040	457.70	23.5C	s 5.9263	24.2C	7 19′32″.5	16 40′30″.0	22.9C	Tanakadate Midzusima	Midzusima Tanakadate
,, 14th 7 34	0.27034	459.67	20.6	5.9124	20.5	7 20 53.8	16 42 57.5	20.8	,, Tanakadate	,, Midzusima
,, ,, 14 47	0.27011	457.73	23.7	5.9281	23.8	7 19 34.0	16 40 5.0	23.7	,,	,,
Mean	0.27028									

H = 0.27028
Reduction to 1895.0 2.81
,, ,, sea level 1.47
H = 0.27032

104. HUNAMA.

(船潤市巾)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time)	δ	Observer	Recorder
July. 15^{th} 18^{h} 10.7^{m}	4 19′ 24″	Tanakadate	Midzusima
,, ,, 19 43.3	,, 19 32	Midzusima	Tanakadate
,, ,, 21 7.7	,, 19 58	Tanakadate	Midzusima
,, ,, 22 41.3	,, 19 51	Midzusima	,,
,, ,, 0 40.8	,, 18 48	,,	,,
,, ,, 3 21.0	,, 15 56	,,	,,
,, ,, 4 19.3	,, 15 38	,,	,,
,, ,, 5 59.4	,, 43 28	,,	,,
,, ,, 7 12.3	,, 42 23	,,	,,
,, ,, 9 43.4	,, 44 8	Tanakadate	Tanakadate
,, ,, 10 44.4	,, 46 22	,,	,,
,, ,, 12 43.2	,, 50 28	,,	,,
,, ,, 13 47.2	,, 50 33	,,	,,
,, ,, 15 22.2	,, 49 18	,,	,,
,, ,, 16 24.6	,, 48 44	,,	,,
,, ,, 17 31.1	,, 47 21	,,	,,
,, ,, 18 26.0	,, 46 54	,,	,,
Mean	4 47′ 26″		

δ = 4 17′.43
Reduction to 1895.0 = 1.57
,, ,, sea level = 0.00
δ = 4 19′.0

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 15^{th} 19^{h} 11.4^{m}	2	57° 32′.3	Tanakadate	Midzusima
,, 16^{th} 5 11.2	2	,, 36.0	Midzusima	,,
,, ,, 14 53.1	-	,, 32.4	Tanakadate	Tanakadate
Mean		57 33′.6		

θ = 57 33′.6
Reduction to 1895.0 = −1.57
,, ,, sea level = 0.00
θ = 57 32′.0

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 15^{th} 20^{h} 44^{m}	0.26384	458.69	23.6C	$5^{s}.9583$	23.7C	7 25′ 59″.0	16 55′ 7″.5	23.6C	{ Tanakadate { Midzusima	{ Midzusima { Tanakadate
,, 16^{th} 8 13	0.26953	457.41	27.5	5.9683	26.8	7 24 57.5	16 52 53.8	28.2	,,	Midzusima
,, ,, 11 29	0.26664	456.33	29.4	5.9761	29.6	7 24 40.0	16 51 40.0	29.2	Tanakadate	Tanakadate
,, ,, 10 33	0.26722	460.50	18.2	5.9418	18.2	..	..	..	,,	Midzusima
Mean	0.26681									

H = 0.26681
Reduction to 1895.0 = 2.18
,, ,, sea level = 0.00
H = 0.26583

105. OTARU.

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July.	18th	11h	43.8m	6°	11′	32″	Midzusima	Midzusima
,,	,,	12	1.0	,,	12	12	,,	,,
,,	,,	12	21.6	,,	12	30	,,	,,
,,	,,	13	22.5	,,	15	1	,,	,,
,,	,,	15	8.7	,,	14	5	,,	Tanakadate
,,	,,	16	35.6	,,	14	35	Tanakadate	Midzusima
,,	,,	17	4.3	,,	12	30	,,	,,
,,	,,	19	4.6	,,	9	5	,,	Tanakadate
,,	,,	19	43.5	,,	8	6	,,	Midzusima
,,	,,	20	35.1	,,	9	7	,,	,,
,,	,,	21	30.2	,,	11	18	,,	,,
,,	,,	23	47.1	,,	10	33	Midzusima	,,
,,	19th	2	2.8	,,	11	38	,,	,,
,,	,,	3	5.8	,,	10	58	,,	,,
,,	,,	5	12.6	,,	8	52	,,	,,
,,	,,	6	24.1	,,	8	12	,,	,,
,,	,,	7	44.9	,,	7	55	Tanakadate	Tanakadate
,,	,,	8	10.2	,,	7	21	,,	,,
,,	,,	9	48.8	,,	13	10	,,	Midzusima
,,	,,	10	14.6	,,	14	7	,,	,,
,,	,,	10	28.5	,,	16	22	,,	,,
,,	,,	11	7.2	,,	17	56	Midzusima	,,
,,	,,	11	58.3	,,	19	22	,,	,,
,,	,,	13	0.3	,,	20	13	,,	,,
,,	,,	13	14.0	,,	20	27	,,	,,
Mean				6°	12′	32″		

δ = 6° 12.53
Reduction to 1895.0 = 1.46
,, ,, sea level = 0.00
δ = 6° 11.0

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July.	18th	16h	9.1m	2	57°	11.7	Midzusima	Midzusima
,,	,,	18	12.7	—	,,	11.4	Tanakadate	Tanakadate
,,	19th	12	36.0	2	,,	11.9	Midzusima	Midzusima
Mean					57	11.7		

θ = 57° 11.7
Reduction to 1895.0 = −1.37
,, ,, sea level = 0.00
θ = 57° 10.33

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July.	18th	14h	26m	*0.26770	459.10	22.5C	5.9456 s	22.5C		—		Tanakadate / ,,	Tanakadate / Midzusima
,,	,,	14	51	0.26760	459.04	22.6	5.9461	22.8	7° 24′ 26.″2	165° 0′ 42.″5	22.1C	Midzusima	Tanakadate
,,	19th	5	52	0.26741	460.56	18.2	5.9389	18.1	7 26 16.3	165 1 46.5	18.4	,,	Midzusima
Mean				0.26730									

H = 0.26760
Reduction to 1895.0 = 192
,, ,, sea level = 000
H = 0.26762

106. OTARU-MYŌKENZAN.

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	15th	15h	44.9m	6°	21′	48″	Tanakadate	Tanakadate
,,	,,	17	56.1	,,	17	45	,,	,,
,,	,,	20	13.5	,,	15	37	,,	,,
,,	,,	21	58.7	,,	15	17	,,	,,
,,	16th	4	43.5	,,	13	23	,,	,,
,,	,,	8	1.3	,,	11	32	,,	,,
,,	,,	8	32.5	,,	12	55	,,	,,
,,	,,	10	58.3	,,	20	55	,,	,,
,,	,,	11	35.6	,,	21	20	,,	,,
,,	,,	12	8.4	,,	21	42	,,	,,
,,	,,	14	26.1	,,	21	41	,,	,,
,,	,,	15	33.3	,,	19	51	,,	,,
,,	,,	16	46.9	,,	17	1	,,	,,
,,	,,	19	7.4	,,	15	41	,,	,,
,,	,,	20	22.1	,,	11	7	,,	,,
,,	,,	21	32.7	,,	15	8	,,	,,
,,	17th	0	4.7	,,	16	3	,,	,,
,,	,,	4	2.9	,,	14	56	,,	,,
,,	,,	7	20.7	,,	12	35	,,	,,
,,	,,	8	55.9	,,	15	18	,,	,,
,,	,,	10	0.7	,,	17	58	,,	,,
,,	,,	11	33.1	,,	21	7	,,	,,
,,	,,	12	47.8	,,	22	3	,,	,,
,,	,,	13	31.5	,,	21	33	,,	,,
,,	,,	15	7.9	,,	19	57	,,	,,
,,	,,	16	37.7	,,	17	22	,,	,,
,,	,,	18	26.3	,,	16	16	,,	,,
,,	,,	19	53.7	,,	16	28	,,	,,
,,	18th	0	39.8	,,	15	57	,,	,,
,,	,,	4	27.0	,,	15	3	,,	,,
,,	,,	7	46.9	,,	11	36	,,	,,
,,	,,	9	4.7	,,	13	10	,,	,,
,,	,,	10	31.9	,,	15	53	,,	,,
,,	,,	11	41.5	,,	18	5	,,	,,
,,	,,	13	58.3	,,	20	25	,,	,,
Mean				6°	16′	2.9″		

δ = 6° 16′.48

Reduction to 1895.0 = 1.19

,, ,, sea level = −0.01

δ = 6° 17′.7

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	16th	10h	19.7m		57°	3′.7	..	..
,,	,,	18	10.5		,,	0.8	..	..
,,	17th	11	25.5		56	59.2	..	..
,,	18th	7	4.7		57	2.2	..	..
Mean					57°	1′.5		

θ = 57° 1′.5

Reduction to 1895.0 = −1.13

,, ,, sea level = 0.01

θ = 57° 0′.4

HORIZONTAL INTENSITY (*H*)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 16th 14h 53m	0.26914	155.92	24.0 C	5.9511 s	24.2 C	7° 19′ 24″.0	16° 39′ 37″.5	23.9 C	Tanakadate	Tanakadate
,, 17th 17 53	0.26925	155.43	25.3	5.9540	26.0	7 19 0.0	16 38 55.0	24.7	,,	,,
,, 18th 8 26	0.26919	155.90	24.7	5.9525	25.8	7 19 35.0	16 40 4.0	23.7	,,	,,
Mean	0.26919									

H = 0.26919

Reduction to 1895.0 = 156

,, ,, sea level = 658

H = 0.26921

107. SAPPORO.

Sapporo Nōen (札幌農園)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time).				δ			Observer	Recorder
July.	20th	6h	5.4m	6°	0′	44″	Tanakadate	Tanakadate
"	"	7	5.5	"	1	59	"	"
"	"	8	6.0	"	2	12	"	"
"	"	8	53.5	"	2	48	"	"
"	"	9	57.6	"	5	1	"	Midzusima
"	"	11	2.8	"	8	11	Midzusima	"
"	"	11	55.6	"	9	16	"	"
"	"	13	0.0	"	8	35	"	"
"	"	13	45.0	"	10	0	Tanakadate	Tanakadate
"	"	14	34.7	"	10	1	"	"
"	"	15	45.9	"	7	28	Midzusima	"
"	"	17	10.9	"	7	35	"	"
"	"	18	29.6	"	7	47	"	"
"	"	20	15.8	"	10	21	Tanakadate	Midzusima
"	"	20	58.9	"	8	58	Midzusima	"
"	"	23	18.9	"	20	4	"	"
"	21st	0	52.2	"	14	19	"	"
"	"	1	47.4	"	9	49	"	"
"	"	3	4.2	"	2	47	"	"
"	"	3	43.7	"	6	51	"	"
"	"	4	55.8	"	2	41	"	"
"	"	6	10.2	"	7	30	"	"
"	"	7	12.0	"	7	11	"	"
"	"	7	48.1	"	12	46	"	"
"	"	9	32.0	"	13	7	Tanakadate	Tanakadate
"	"	10	11.6	"	11	42	"	"
"	"	11	45.8	"	11	56	"	"
"	"	12	27.0	"	13	15	"	"
"	"	13	28.7	"	14	27	"	"
"	"	14	16.4	"	13	1	Midzusima	"
"	"	15	1.2	"	10	8	"	"
"	"	16	58.4	"	9	56	Tanakadate	Midzusima
"	"	17	32.7	"	6	52	"	"
"	"	18	41.6	"	5	52	Midzusima	Tanakadate
"	"	19	26.4	"	2	46	Tanakadate	"
"	"	20	43.7	"	5	43	"	"
"	"	23	16.0	"	8	20	"	"
"	22nd	1	39.4	"	8	14	"	"
"	"	3	52.1	"	4	59	"	"
"	"	6	35.7	"	4	29	"	"
"	"	8	33.6	"	5	45	"	Midzusima
"	"	9	44.1	"	6	9	"	"
Mean				6°	9′	15″		

$\delta = 6°\ 9'.25$

Reduction to 1895.0 = 1.39

" " sea level = 0.00

$\delta = 6°\ 10'.6$

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July.	20th	11h	42.0m	—	57°	7′.7	Midzusima	Midzusima
"	21st	6	54.8	—	"	11.8	"	"
"	"	11	18.1	—	"	10.8	Tanakadate	Tanakadate
"	"	18	0.8	2	"	11.9	Midzusima	"
"	22nd	9	21.4	2	"	8.2	Tanakadate	Midzusima
Mean					57	10′.1		

$\theta = 57°\ 10'.1$

Reduction to 1895.0 = − 1.26

" " sea level = 0.00

$\theta = 57°\ 8'.8$

HORIZONTAL INTENSITY (*H*)
(* *Value deduced from Vibration only by assuming Value of M.*)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 21st 15 45m	0.26489	455.02	33.1C	s 6.0073	34.3C	7 25′40″.0	16 54′11″.0	32.0C	Tanakadate / Midzusima	Midzusima / Tanakadate
,, ,, 21 3.0	*0.26462	458.40	24.2	5.9848	24.2	(7 27 24.0	16 59 32.5	23.5)	..	..
,, 22nd 8 9	0.26532	456.54	28.7	5.9893	28.6	7 26 8.8	16 55 22.5	28.7	Midzusima / Tanakadate	Tanakadate / Midzusima
Mean	0.26494									

H = 0.26494
Reduction to 1895.0 = 153
,, ,, sea level = 000
H = 0.26496

札 幌 出 張 (舊 測 候 所 跡)

DIP (θ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 22th 14h 50.6m		57° 13′.0	Tanakadate	Midzusima
,, ,, 16 50.0		,, 10.4	Midzusima	Tanakadate
Mean		57° 11′.7		

HORIZONTAL INTENSITY (*H*)
(* *Value deduced from Vibration only by assuming Value of M.*)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 22nd 15h 42m	*0.26446	457.00	28.2C	s 5.9960	28.2C	—	—	—	Tanakadate	Midzusima
,, ,, 15 53	*0.26508	457.00	28.1	5.9889	28.1	—	—	—	,,	,,
,, ,, 16 23	*0.26465	457.20	27.5	5.9925	27.5	—	—	—	,,	,,
Mean	0.26473									

108. IWAMIZAWA.

Bank of River Ikusyunbetu (幾 春 別 河 畔)

DECLINATION (δ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July. 23rd 16h 28.3m	5 31′ 41″	Tanakadate	Midzusima
,, ,, 17 19.7	,, 29 15	,,	,,
,, ,, 18 32.9	,, 27 5	Midzusima	Tanakadate
,, ,, 18 53.5	,, 25 22	,,	,,
,, ,, 21 10.4	,, 25 36	,,	Midzusima
,, ,, 23 27.9	,, 26 17	,,	,,
,, 24nd 1 22.1	,, 26 14	,,	,,
,, ,, 2 57.6	,, 23 40	,,	,,
,, ,, 5 19.1	,, 25 1	,,	,,
,, ,, 7 31.6	,, 22 52	,,	,,
,, ,, 8 45.1	,, 23 21	Tanakadate	Tanakadate
,, ,, 10 47.4	,, 24 55	,,	,,
,, ,, 11 46.7	,, 29 37	,,	,,
,, ,, 12 41.9	,, 32 6	,,	,,
,, ,, 14 8.1	,, 33 39	,,	Midzusima
,, ,, 15 9.7	,, 32 1	Midzusima	,,
,, ,, 16 6.9	,, 31 39	,,	,,
,, ,, 17 8.6	,, 28 2	Tanakadate	,,
,, ,, 17 41.0	,, 29 16	,,	,,
,, ,, 18 46.9	,, 29 55	Midzusima	,,
,, ,, 19 52.7	,, 28 2	,,	,,
,, 25th 4 43.1	,, 25 12	,,	,,
,, ,, 6 1.5	,, 23 26	,,	,,
,, ,, 7 21.0	,, 23 32	Tanakadate	,,
,, ,, 8 9.2	,, 24 46	Midzusima	,,
Mean	5 26′ 0″		

δ = 5° 26′.00
Reduction to 1895.0 = 1.32
,, ,, sea level = 0.00
δ = 5 27′.3

DIP (θ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 23rd 19h 26.5m	—	57 18′.1	Tanakadate	Midzusima
,, 24th 8 8.8	—	,, 14.0	Midzusima	Tanakadate
,, ,, 14 54.3	—	,, 14.3	,,	Midzusima
,, ,, 18 21.8	2	,, 17.6	Tanakadate	,,
,, ,, 19 12.2	—	,, 16.9	Midzusima	,,
,, 25th 8 0.0	2	,, 14.8	Tanakadate	Tanakadate
Mean		57 15′.9		

$\theta = 57$ 15′.9
Reduction to 1895.0 = −1.15
,, ,, sea level = 0.00
$\theta = 57°$ 14′.7

HORIZONTAL INTENSITY (*H*)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 23rd 18h 9m	0.26472	456.52	28.2 C	s 5.9971	28.5 C	7°27′15″.0	16 57′54″.0	27.9 C	Tanakadate Midzusima	Midzusima Tanakadate
,, 24th 13 45	0.26478	457.60	25.2	5.9886	25.3	7 28 5.0	16 59 36.3	25.2	Tanakadate ,,	,, Midzusima
,, 25th 7 47	0.26493	458.10	22.5	5.9835	22.6	7 28 32.5	17 0 55.0	22.4	Midzusima Tanakadate	Tanakadate Midzusima
Mean	0.26181									

H = 0.26181
Reduction to 1895.0 = 108
,, ,, sea level = 000
H = 0.26482

109. SORATIPT.

DECLINATION (δ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July. 25th 17h 55.3m	5 50′ 6″	Tanakadate	Midzusima
,, ,, 18 58.8	,, 49 50	,,	,,
,, ,, 20 24.3	,, 49 13	Midzusima	,,
,, ,, 21 45.4	,, 48 45	,,	,,
,, ,, 23 12.3	,, 48 20	,,	,,
,, 26th 0 42.0	,, 48 10	,,	,,
,, ,, 3 38.9	,, 47 56	,,	,,
,, ,, 5 4.4	,, 47 30	,,	,,
,, ,, 6 26.0	,, 45 45	,,	,,
,, ,, 8 29.0	,, 45 1	Tanakadate	,,
,, ,, 10 57.9	,, 50 2	,,	,,
,, ,, 11 46.6	,, 52 11	Midzusima	,,
,, ,, 13 0.1	,, 53 2	,,	,,
,, ,, 13 54.5	,, 52 16	Tanakadate	,,
,, ,, 15 12.1	,, 52 5	,,	,,
,, ,, 16 2.7	,, 51 21	,,	,,
,, ,, 17 35.3	,, 49 1	,,	,,
Mean	5° 18′ 16″		

$\delta = 5$ 48′.77
Reduction to 1895.0 = 1.34
,, ,, sea level = 0.00
$\delta = 5°$ 50′.1

DIP. (θ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 25th 18h 33.0m	—	57 20′.7	Midzusima	Tanakadate
,, 26th 7 47.1	2	,, 24.8	Tanakadate	,,
,, ,, 14 40.6	—	,, 24.8	Midzusima	,,
Mean		57° 23′.4		

$\theta = 57$ 23′.4
Reduction to 1895.0 = −1.18
,, ,, sea level = 0.00
$\theta = 57$ 22′.2

HORIZONTAL INTENSITY (*H*)
(* *Value deduced from Vibration only by assuming Value of M.*)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July. 25th 21h 2m	0.26615	458.93	20°.8C	s 5.9637	20.7C	7°27′18″.8	16°58′ 6″.3	20.8C	{ Midzusima { Tanakadate	{ Tanakadate { Midzusima
,, 26th 9 36	0.26552	456.74	29.2	5.9869	29.2	7 25 37.5	16 53 32.5	29.3	,,	Tanakadate
,, ,, 13 30	0.26574	454.15	35.0	6.0005	34.9	7 22 57.5	16 47 58.8	35.1	Midzusima	Midzusima
,, ,, 18 3	*0.26564	456.40	28.5	5.9868	28.5	—	—	—	Tanakadate	,,
Mean	0.26576									

H = 0.26576
Reduction to 1895.0 = 093
,, ,, sea level = 000
H = 0.26577

110. TIP-YABUSI.

DECLINATION (δ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July.	29th	11h	17.3m	5°	33′	23″	Tanakadate	Midzusima
,,	,,	12	24.4	,,	36	21	,,	,,
,,	,,	12	32.0	,,	37	13	,,	,,
,,	,,	13	22.6	,,	37	17	Midzusima	Tanakadate
,,	,,	14	26.2	,,	37	28	,,	,,
,,	,,	15	27.1	,,	35	54	Tanakadate	Midzusima
,,	,,	16	54.3	,,	33	2	Midzusima	Tanakadate
,,	,,	17	0.5	,,	32	23	,,	,,
,,	,,	18	4.2	,,	31	19	Tanakadate	Midzusima
,,	,,	19	48.1	,,	31	32	,,	,,
,,	,,	21	45.8	,,	31	52	,,	,,
,,	,,	23	19.8	,,	31	38	,,	Tanakadate
,,	30th	3	14.7	,,	30	9	,,	,,
,,	,,	6	25.7	,,	27	36	,,	,,
,,	,,	7	9.3	,,	27	44	,,	Midzusima
,,	,,	7	58.9	,,	27	38	Midzusima	Tanakadate
,,	,,	9	43.3	,,	33	33	,,	,,
,,	,,	9	49.1	,,	33	8	Tanakadate	Midzusima
,,	,,	10	32.7	,,	35	47	,,	,,
Mean				5°	31′	58″		

δ = 5° 31′.97
Reduction to 1895.0 = 1.27
,, ,, sea level = −0.03
δ = 5° 33′.2

DIP (θ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 25th 16h 26.5m	2	57° 16′.7	Tanakadate	Midzusima
,, ,, 17 38.7	—	,, 18.2	Midzusima	Tanakadate
,, 30th 9 11.9	2	,, 15.9	Tanakadate	Midzusima
Mean		57° 16′.9		

θ = 57° 16′.9
Reduction to 1895.0 = −1.07
,, ,, sea level = 0.03
θ = 57° 15′.9

HORIZONTAL INTENSITY (*H*)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections. φ_1	φ_2	Temp. t_D	Observer	Recorder
July. 29th 14h 7m	0.26558	455.58	29°.5C	s 5.99317	29°.6C	7°24′50″.0	16°52′21″.2	29°.5C	{ Tanakadate { Midzusima	{ Midzusima { Tanakadate
,, ,, 21 18	0.26541	456.93	23.9	5.9866	24.5	7 26 38.8	16 56 27.5	23.3	{ ,, { Tanakadate	{ ,, { Midzusima
,, 30th 7 39	0.26522	456.53	21.6	5.9908	24.8	7 26 32.5	16 56 20.0	24.4	{ ,, { Midzusima	{ ,, { Tanakadate
Mean	0.26541									

H = 0.26541
Reduction to 1895.0 = 064
,, ,, sea level = 307
H = 0.26515

111. ASAHIKAWA.

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	1st	2h	10.6m	6°	17′	35″	Midzusima	Midzusima
,,	,,	3	26.6	,,	16	47	,,	,,
,,	,,	5	52.6	,,	15	22	,,	,,
,,	,,	7	21.4	,,	14	17	Tanakadate	Tanakadate
,,	,,	9	15.0	,,	17	32	,,	,,
,,	,,	10	16.6	,,	18	8	,,	,,
,,	,,	11	7.6	,,	20	42	,,	,,
,,	,,	11	52.1	,,	23	0	,,	,,
,,	,,	12	59.1	,,	25	0	,,	,,
,,	,,	14	31.2	,,	23	57	,,	,,
,,	,,	16	10.6	,,	20	19	Midzusima	,,
,,	,,	17	18.0	,,	19	27	,,	Midzusima
,,	,,	18	2.0	,,	18	33	,,	,,
,,	,,	19	4.2	,,	18	39	,,	,,
,,	,,	20	40.8	,,	18	42	,,	,,
,,	,,	21	58.7	,,	19	3	Tanakadate	Tanakadate
,,	2nd	0	57.3	,,	18	37	,,	,,
,,	,,	1	40.0	,,	17	43	,,	,,
,,	,,	6	26.4	,,	14	5	,,	,,
,,	,,	7	59.1	,,	13	25	,,	,,
Mean				6°	18′	50″		

δ = 6° 18′.83
Reduction to 1895.0 = 1.30
,, ,, sea level = 0.00
δ = 6° 20′.1

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	1st	6h	59.1m	—	57	31′.7	Midzusima	Tanakadate
,,	,,	15	44.0	—	,,	32.5	Tanakadate	Midzusima
,,	,,	20	2.6	—	,,	31.5	Midzusima	,,
Mean					57°	31′.9		

θ = 57° 31′.9
Reduction to 1895.0 = −1.18
,, ,, sea level = 0.00
θ = 57° 30′.7

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections		Temp. t_D	Observer	Rscorder
									φ_1	φ_2			
Aug.	1st	8h	30m	0.26388	457.42	22.8C	5.9977 s	22.3C	7 29′19″.0	17 2′40″.0	23.8C	Tanakadate	Tanakadate
,,	,,	13	48	*0.26416	453.80	33.3	6.0210	33.3	(7 27 30.0	16 52 41.3	33.8)	,,	,,
,,	,,	18	35	0.26410	455.66	28.0	6.0100	28.4	7 27 17.5	16 57 38.8	27.7	Midzusima	Midzusima
,,	,,	21	26	0.26441	457.51	23.9	5.9935	24.1	7 28 30.0	17 0 15.3	23.7	{ ,, / Tanakadate	{ Tanakadate / Midzusima
,,	2nd	8	7	0.26422	457.15	24.4	5.9970	24.1	7 28 27.5	17 0 24.0	24.7	{ ,, / Midzusima	{ ,, / Tanakadate
Mean				0.26415									

H = 0.26415
Reduction to 1895.0 = 074
,, ,, sea level = 000
H = 0.26146

112. OHOTUKAWA.

DECLINATION (δ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time)	δ	Observer	Recorder
Aug. 3rd 19h 41.0m	6 53′ 46″	Tanakadate	Tanakadate
,, ,, 21 38.0	,, 54 0	,,	,,
Mean	6° 53′ 53″		

DIP (θ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 4th 7h 34.8m	2	57 36′.1	Tanakadate	Tanakadate

θ = 57 36′.1
Reduction to 1895.0 = −1.19
,, ,, sea level = 0.12
θ = 57° 35′.0

HORIZONTAL INTENSITY (H)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 4th 5h 40m	0.26581	459.70	16.0C	5.9s098	15.5C	7 28′ 9″.0	16 59′30″.0	16.6C	Midzusima	Tanakadate

H = 0.26584
Reduction to 1895.0 = 088
,, ,, sea level = 1029
H = 0.26595

113. POROKAMUIKOTAN.

DECLINATION (δ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	θ	Observer	Recorder
Aug. 6th 14h 35.9m	6 15′ 14″	Tanakadate	Tanakadate
,, ,, 15 3.9	,, 16 2	,,	,,
,, ,, 19 19.5	,, 10 8	,,	,,
,, 7th 2 26.4	,, 8 10	,,	,,
,, ,, 4 45.9	,, 7 19	,,	,,
,, ,, 7 4.3	,, 1 16	,,	,,
,, ,, 7 38.0	,, 3 33	,,	,,
,, ,, 8 52.5	,, 7 53	,,	,,
,, ,, 9 54.0	,, 9 10	,,	,,
,, ,, 10 21.1	,, 10 35	,,	,,
,, ,, 11 14.3	,, 11 33	,,	,,
,, ,, 11 45.8	,, 12 4	,,	,,
,, ,, 12 25.6	,, 15 34	,,	,,
,, ,, 13 46.9	,, 15 43	,,	,,
,, ,, 14 29.1	,, 15 35	,,	,,
Mean	6° 10′ 50″		

δ = 6 10′.83
Reduction to 1895.0 = 1.28
,, ,, sea level = −0.09
δ = 6 12′.0

DIP (θ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 6th 17h 28.5m	2	58° 6′.4	Tanakadate	Tanakadate
,, 7th 5 42.0	—	,, 6.2	,,	,,
,, ,, 13 11.8	—	,, 5.2	,,	,,
Mean		58° 5′.9		

θ = 58 5′.9
Reduction to 1895.0 = −1.17
,, ,, sea level = 0.12
θ = 58 4′.8

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 6th 15^{h} 34^{m}	0.26422	454.18	31°.9C	6^{s}.0184	32°.2C	7 25′52″.5	16 54′56″.2	31.6C	Tanakadate	Tanakadate
,, 7th 4 4	0.26445	458.66	19.0	5.9847	18.9	7 29 54.0	17 3 59.0	19.0	,,	,,
,, ,, 8 22	0.26418	456.69	26.9	6.0174	26.8	7 28 12.5	17 0 7.5	27.1	,,	,,
Mean	0.26428									

$H = 0.26428$

Reduction to 1895.0 = 073

,, ,, sea level = 1036

$H = 0.26439$

幌神威古潭出張

Poronai（ポロナイ）

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 8th 10^{h} 10.6^{m}	2	57 21.9	Tanakadate	Tanakadate

114. MASIKE.

(増 毛 町)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 21st 2^{h} 21.8^{m}	6° 8′ 11″	Tanakadate	Kimura
,, ,, 5 38.6	,, 5 19	,,	Tanakadate
,, ,, 6 27.0	,, 4 52	,,	,,
,, ,, 7 42.9	,, 4 11	Kimura	,,
,, ,, 9 18.4	,, 9 38	,,	Kimura
,, ,, 11 5.4	,, 12 33	,,	,,
,, ,, 12 40.6	,, 14 8	,,	,,
,, ,, 14 15.7	,, 11 53	,,	,,
,, ,, 15 38.7	,, 9 50	,,	,,
,, ,, 17 38.3	,, 6 20	,,	,,
,, ,, 18 34.0	,, 5 56	Tanakadate	,,
,, 22nd 0 10.3	,, 5 35	,,	Tanakadate
,, ,, 3 53.6	,, 1 55	,,	,,
,, ,, 6 27.1	,, 0 42	Kimura	,,
Mean	6 7′ 53″		

$\delta = 6$ 7′.88

Reduction to 1895.0 = 1.22

,, ,, sea level = 0.00

$\delta = 6$ 9′.1

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 20th 12^{h} 24.1^{m}	—	57° 34′.1	Tanakadate	Kimura
,, 21st 12 14.3	—	,, 36.4	Kimura	Tanakadate
,, ,, 14 54.1	—	,, 37.3	,,	Kimura
,, ,, 19 48.7	—	,, 36.7	Tanakadate	,,
Mean		57 36′.1		

$\theta = 57$ 36′.1

Reduction to 1895.0 = −1.17

,, ,, sea level = 0.00

$\theta = 57$ 34′.9

HORIZONTAL INTENSITY (*H*)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_b	Observer	Recorder
Aug. 21st 8h 43m	0.26498	457.28	20.6C	s 5.9882	20.7C	7°27′31.″9	16 58′16.″8	20.5C	Kimura Tanakadate	Tanakadate Kimura
,, ,, 13 36	0.26514	455.83	22.1	5.9963	22.4	7 25 51.2	16 54 23.7	21.9	,, Kimura	,, Tanakadate
,, ,, 23 20	0.26543	457.15	18.9	5.9838	19.0	7 26 43.7	16 56 28.1	18.8	,, Tanakadate	,, Kimura
Mean	0.26518									

H = 0.26518
Reduction to 1895.0 = 120
,, ,, sea level = 000
H = 0.26519

115. SIRASITOMARI.

Ekiden and Post Office, about 300m, East of the Ridge

(驛傳兼郵便局)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 23rd 10h 49.0m	6 27′ 34″	Tanakadate	Kimura
,, ,, 11 20.6	,, 29 13	,,	,,
,, ,, 13 13.6	,, 31 4	,,	,,
,, ,, 14 35.3	,, 31 34	Kimura	Tanakadate
,, ,, 14 47.1	,, 31 10	,,	,,
,, ,, 14 57.3	,, 31 4	,,	,,
,, ,, 15 59.7	,, 29 59	Tanakadate	Kimura
,, ,, 17 0.7	,, 27 7	Kimura	,,
,, ,, 18 7.5	,, 25 40	,,	,,
,, ,, 21 0.8	,, 25 20	Tanakadate	Tanakadate
,, ,, 23 23.0	,, 26 44	,,	,,
,, 24th 3 11.6	,, 25 37	,,	,,
,, ,, 5 4.7	,, 24 23	,,	,,
,, ,, 7 39.8	,, 22 56	,,	Kimura
,, ,, 8 51.9	,, 22 25	Kimura	Tanakadate
,, ,, 9 33.7	,, 25 4	Tanakadate	Kimura
,, ,, 11 10.6	,, 28 52	Kimura	,,
Mean	6° 26′ 34″		

δ = 6° 26.′57
Reduction to 1895.0 = 1.22
,, ,, sea level = 0.00
δ = 6 27.′8

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 23rd 16h 32.7m	2	58° 17.′8	Kimura	Tanakadate
,, 24th 7 15.2	—	,, 14.9	Tanakadate	,,
,, ,, 10 25.2	—	,, 18.3	Kimura	Kimura
Mean		58° 17.′0		

θ = 58° 17.′0
Reduction to 1895.0 = −1.18
,, ,, sea level = 0.00
θ = 58° 15.′8

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 23rd 14^h 3^m	0.26255	456.03	24.°6C	6.0237^s	24.°5C	7°30′ 8.″1	17 4′13.″1	24.8C	{ Kimura Tanakadate	{ Tanakadate Kimura
,, ,, 22 38	0.26235	458.25	12.9	6.0120	13.4	7 33 17.5	17 11 36.2	12.5	,,	Tanakadate
,, 24th 8 2.0	0.26242	456.37	21.2	6.0224	21.0	7 30 45.6	17 5 39.0	21.3	,,	Kimura
Mean	0.26244									

$H=$ 0.26244
Reduction to 1895.0 = +01
,, ,, sea level = 000

$H=$ 0.26245

116. HŪREN.

Field (稲荷堂東北原野)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 25th 10^h 55.7^m	6° 14′ 38″	Tanakadate	Kimura
,, ,, 11 38.7	,, 17 1	,,	,,
,, ,, 13 21.2	,, 18 15	,,	,,
,, ,, 14 14.7	,, 18 43	Kimura	,,
,, ,, 15 42.5	,, 16 52	,,	,,
,, ,, 17 5.7	,, 15 11	,,	,,
,, ,, 19 42.8	,, 9 56	,,	Tanakadate
,, ,, 20 36.4	,, 12 11	Tanakadate	,,
,, 26th 0 21.3	,, 11 14	,,	,,
,, ,, 4 2.5	,, 11 43	,,	,,
,, ,, 6 45.9	,, 9 3	Kimura	Kimura
,, ,, 8 27.1	,, 9 14	Tanakadate	,,
,, ,, 9 37.9	,, 10 33	,,	,,
,, ,, 10 54.8	,, 14 27	,,	,,
,, ,, 12 28.9	,, 16 17	,,	,,
,, ,, 13 40.1	,, 15 51	Kimura	Tanakadate
,, ,, 15 30.1	,, 15 44	,,	,,
,, ,, 16 28.6	,, 14 5	,,	,,
,, ,, 17 35.3	,, 10 26	Tanakadate	Kimura
,, ,, 18 12.9	,, 10 51	,,	,,
,, ,, 19 15.2	,, 11 3	,,	,,
,, ,, 20 15.8	,, 9 44	,,	,,
Mean	6° 12′ 41″		

$\delta=6°$ 12.′68
Reduction to 1895.0 = 1.22
,, ,, sea level = 0.00

$\delta=6°$ 13.′9

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder.
Aug. 25th 14^h 0.6^m	—	58 27.′0	{ Tanakadate Kimura	{ Tanakadate Kimura
,, ,, 16 39.6	—	,, 21.8	,,	,,
,, 26th 10 29.8	—	,, 27.0	Tanakadate	,,
,, ,, 11 24.0	—	,, 25.7	Kimura	Tanakadate
,, ,, 17 7.4	—	,, 28.3	Tanakadate	Kimura
Mean		58° 26.′7		

$\theta=58°$ 26.′7
Reduction to 1895.0 = −1.19
,, ,, sea level = −0.00

$\theta=58°$ 25.′5

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 25th 13^h 4^m	0.26167	455.49	24.9C	6.0394^s	25.6C	7 31′30″.6	17 7′30″.6	24.3C	Kimura / Tanakadate	Tanakadate / Kimura
,, 26th 8 3	0.26138	457.05	18.1	6.0302	18.0	7 33 36.2	17 12 37.5	18.2	Kimura / Tanakadate	Tanakadate / Kimura
,, ,, 13 19	0.26136	454.75	26.1	6.0478	26.7	7 31 7.5	17 6 27.5	25.5	,, / Kimura	,, / Tanakadate
,, ,, 19 49	0.26099	456.76	17.3	6.0364	17.2	7 33 52.2	17 12 58.1	17.4	,, / Tanakadate	,, / Kimura
Mean	0.26135									

$H =$ 0.26135
Reduction to 1895.0 = 001
,, ,, sea level = 000
$H =$ 0.26136

117. TESIO.

Field (天 鹽 原 野)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 29th 9^h 41.9^m	6 24′ 33″	Tanakadate	Kimura
,, ,, 11 14.7	,, 29 11	Kimura	Tanakadate
,, ,, 12 33.6	,, 29 6	,,	,,
,, ,, 14 3.7	,, 28 48	Tanakadate	Kimura
,, ,, 15 27.0	,, 26 13	Kimura	Tanakadate
,, ,, 17 33.6	,, 23 52	,,	Kimura
,, ,, 18 18.8	,, 24 18	,,	,,
,, ,, 18 25.6	,, 24 14	,,	Tanakadate
,, ,, 22 47.1	,, 23 32	Tanakadate	Kimura
,, 30th 3 0.5	,, 22 23	Kimura	,,
,, ,, 5 47.5	,, 19 57	,,	,,
,, ,, 7 5.8	,, 17 17	,,	,,
,, ,, 8 24.2	,, 17 48	,,	Tanakadate
,, ,, 9 32.0	,, 20 44	,,	,,
,, ,, 10 52.9	,, 24 30	,,	,,
,, ,, 12 14.9	,, 27 16	,,	,,
,, ,, 13 11.7	,, 26 42	,,	,,
,, ,, 17 2.4	,, 23 42	,,	,,
,, ,, 18 35.6	,, 21 4	,,	,,
Mean	6° 23′ 30″		

δ = 6° 23′.50
Reduction to 1895.0 = 1.25
,, ,, sea level = 0.00
δ = 6° 24′.8

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 29th 10^h 46.1^m	—	58° 48′.7	Kimura	Tanakadate
,, ,, 17 6.2	—	,, 53.0	Tanakadate	Kimura
,, 30th 6 34.0	—	,, 50.0	Kimura	,,
,, ,, 10 16.2	—	,, 50.0	Tanakadate	,,
Mean		58 50′.4		

θ = 58° 50′.4
Reduction to 1895.0 = −1.22
,, ,, sea level = 0.00
θ = 58° 49′.2

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 29th 13h 37m	0.25938	453.91	27.0C	s 6.0757	27.3C	7 33′55″.2	17 13′24″.3	26.8C	Kimura Tanakadate	Tanakadate Kimura
.. 30th 8 1	0.25930	455.84	21.2	6.0634	21.4	7 36 1.6	17 18 24.0	21.1	.. Kimura	.. Tanakadate
.. ,, 17 58	0.25897	454.17	25.4	6.0808	26.6	7 34 30.0	17 15 1.9	21.3	.. Tanakadate	.. Kimura
Mean	0.25922									

$H = 0.25922$
Reduction to 1895.0 = 102
.. .. sea level = 000
$H = 0.25923$

118. POSINAI PITARI.

DECLINATION (δ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 2nd 18h 26.0m	5 29′ 25″	Tanakadate	Kimura
.. ,, 22 12.8	.. 27 29	Kimura	Tanakadata
.. 3rd 5 56.6	.. 24 53	Tanakadate	Kimura
,, ,, 6 40.1	.. 23 30	..	..
.. .. 8 55.4	.. 24 54	..	..
Mean	5 28′ 06″		

$\delta = 5$ 28′.10
Reduction to 1895.0 = 1.11
.. .. sea level = 0.00
$\delta = 5°$ 29′.21

DIP (θ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 2nd 20h 39.8m	—	58 14′.5	Kimura	Kimura

$\theta = 58°$ 14′.5
Reduction to 1895.0 = −1.13
.. .. sea level = 0.00
$\theta = 58°$ 13′.4

HORIZONTAL INTENSITY (H).
(*Value deduced from Vibration only by assuming Value of M.)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Sept. 3rd 8h 15m	*0.26096	457.20	16.2C	s 6.0340	16.2C	(7°35′ 7″.5	17°19′12″.0	16.3C)	Kimura Tanakadate	Tanakadate Kimura

$H = 0.26096$
Reduction to 1895.0 = 076
,, ,, sea level = 000
$H = 0.26097$

119. OKURUMATOMANAI.

Islet in River Tesio (天鹽河中ノ嶋嶼)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	5th	15h	0.3m	7°	8′	17″	Tanakadate	Kimura
,,	,,	15	70.4	,,	6	32	Kimura	Tanakadate
,,	,,	17	9.9	,,	6	6	,,	,,
,,	,,	18	38.4	,,	5	48	,,	,,
,,	,,	19	53.8	,,	1	59	Tanakadate	Kimura
,,	,,	21	15.6	,,	5	7	,,	,,
,,	,,	22	42.3	,,	3	27	,,	,,
,,	6th	1	58.1	,,	2	46	,,	,,
,,	,,	5	22.7	,,	2	19	Kimura	Tanakadate
,,	,,	6	42.5	6	59	32	,,	,,
,,	,,	7	20.9	,,	58	33	,,	,,
,,	,,	8	26.2	,,	58	26	,,	,,
,,	,,	9	26.3	7	0	59	Tanakadate	Kimura
,,	,,	10	40.2	,,	4	59	Kimura	Tanakadate
,,	,,	12	25.4	,,	10	16	,,	,,
,,	,,	13	30.3	,,	10	42	Tanakadate	Kimura
,,	,,	14	23.8	,,	9	20	,,	,,
Mean				7°	4′	17″		

	$\delta = 7°$	4′.28
Reduction to	1895.0 =	1.07
,, ,,	sea level =	−0.01
	$\delta = 7$	5.3

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	5th	13h	46.5m	2	58°	21′.4	Kimura	Tanakadate
,,	6th	6	14.3	—	,,	23.1	Tanakadate	Kimura
,,	,,	8	59.6	—	,,	25.3	Kimura	Tanakadate
,,	,,	11	15.6	—	,,	25.2	Tanakadate	Kimura
Mean					58°	23′.8		

	$\theta = 58$	23′.8
Reduction to	1895.0 =	−1.0
,, ,,	sea level =	0.01
	$\theta = 58$	22.8

HORIZONTAL INTENSITY (H)

(*Value deduced from Vibration only by assuming Value of M.)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	5th	22h	7m	0.26140	455.76	19.8C	s 6.0388	19.8C	7 32′21″.2	17 9′50″.0	19.8C	Kimura / Tanakadate	Tanakadate / Kimura
,,	6th	8	8	*0.26114	456.10	19.5	6.0175	19.4	(7 33 0.0	17 11 7.5	19.5)	,, / Kimura	,, / Tanakadate
,,	,,	13	17	*0.2 121	452.50	30.3	6.0399	31.8	(7 29 8.7	17 2 19.0	30.3)	,, / Tanakadate	,, / Kimura
Mean				0.26125									

	$H = 0.26125$	
Reduction to	1895.0 =	048
,, ,,	sea level =	000
	$H = 0.26125$	

120. NAYOROPT.

Bank of River Tesio (天鹽河畔)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	8th	13h	41.1m	6°	56′	12″	Tanakadate	Kimura
,,	,,	14	10.7	,,	55	31	,,	,,
,,	,,	15	23.3	,,	53	22	,,	,,
,,	,,	16	22.6	,,	51	50	Kimura	Tanakadate
,,	,,	17	59.3	,,	51	10	,,	,,
,,	,,	19	5.2	,,	51	28	Tanakadate	Kimura
,,	,,	20	11.6	,,	51	10	Kimura	Tanakadate
,,	,,	23	0.3	,,	50	30	Tanakadate	Kimura
,,	9th	1	36.1	,,	49	4	,,	Tanakadate
,,	,,	4	34.0	,,	48	12	Kimura	Kimura
,,	,,	6	1.1	,,	47	56	Tanakadate	,,
,,	,,	7	21.9	,,	46	36	Kimura	Tanakadate
,,	,,	8	37.8	,,	45	50	Tanakadate	Kimura
,,	,,	9	31.6	,,	47	31	,,	,,
,,	,,	10	21.9	,,	50	21	Kimura	Tanakadate
,,	,,	11	24.2	,,	52	36	Tanakadate	Kimura
,,	,,	12	12.9	,,	54	6	,,	,,
,,	,,	13	9.8	,,	53	19	,,	,,
,,	,,	13	52.6	,,	53	17	Kimura	Tanakadate
Mean				6	50′	16″		

δ = 6 50.27
Reduction to 1895.0 = 0.93
,, ,, sea level = −0.01
δ = 6 51.3

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	8th	17h	33.2m	–	58	12.2	Kimura	Tanakadate
,,	9th	6	52.2		,,	12.8	Tanakadate	Kimura
,,	,,	11	0.8		,,	13.8	Kimura	Tanakadate
Mean					58	12.9		

θ = 58 12.9
Reduction to 1895.0 = -0.88
,, ,, sea level = 0.02
δ = 58 12.0

HORIZONTAL INTENSITY (H)

Observations of the West Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib².	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	8th	14h	54m	0.26196	453.51	27.0C	6.0492	27.6C	7 28′53.″1	17 1′15.″0	26.5C	Kimura / Tanakadate	Tanakadate / Kimura
,,	,,	19	44	0.26212	455.90	18.5	6.0300	18.8	7 31 19.0	17 7 19.0	18.3	,, / Kimura	,, / Tanakadate
,,	9th	8	13	0.26206	457.06	17.2	6.0224	17.3	7 32 25.6	17 9 50.6	17.2	Tanakadate / Kimura	Kimura / Tanakadate
Mean				0.26205									

H = 0.26205
Reduction to 1895.0 = 025
,, ,, sea level = 119
H = 0.26206

121. NUPPAMAMOI.

South of Poromoi, Islet. (幌モイノ南，天鹽河中ノ小嶼)

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 11th 17h 36.0m	—	59° 1'.2	Kimura	Tanakadate
,, 12th 7 7.7	—	58 57.3	Tanakadate	Kimura
,, ,, 11 34.2	—	,, 59.5	Kimura	Tanakadate
,, ,, 16 15.2	—	59 0.1	Tanakadate	Kimura
Mean		58 59'.5		

$\theta = 58°$ 59'.5
Reduction to 1895.0 = −1.07
,, ,, sea level = 0.00
$\theta = 58°$ 58'.4

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 11th 19h 39m	0.25776	455.22	21°.8C	s 6.0857	22.0C	7 37'51".3	17 22' 2".5	21.6C	Tanakadate Kimura	Kimura Tanakadate
,, 12th 8 59	0.25770	456.33	18.9	6.0773	18.5	7 39 5.6	17 25 15.0	19.4	,, Tanakadate	,, Kimura
,, ,, 13 32	0.25805	455.91	19.0	6.0774	19.2	7 38 35.6	17 24 30.6	18.8	,, Kimura	,, Tanakadate
Mean	0.25781									

$H =$ 0.25781
Reduction to 1895.0 = 077
,, ,, sea level = 151
$H =$ 0.25786

122. WAKASAKANAI.

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 11th 22h 37.6m		59 0'.9	Tanakadate	Kimura

$\theta = 59°$ 0'.9
Reduction to 1895.0 = −1.17
,, ,, sea level = 0.00
$\theta = 58$ 59'.7

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 14th 21h 29m	*0.25751	458.80	11.1C	s 6.0636	11.1C	..	.	..	Tanakadate	Kimura
,, ,, 21 17	*0.25805	459.30	9.7	6.0540	9.7	..	..	..	,,	,,
Mean	0.25778									

$H =$ 0.25778
Reduction to 1895.0 = 105
,, ,, sea level = 000
$H =$ 0.25779

123. WAKKANAI.

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	δ			Observer	Recorder
Sept. 15th 19h 22.8m	6°	48′	16″	Tanakadate	Tanakadate
„ „ 20 25.2	„	48	46	„	„
„ „ 23 20.2	„	48	29	„	„
„ 16th 0 56.5	„	47	31	„	„
„ „ 1 17.2	„	46	34	„	„
„ „ 7 34.3	„	45	51	„	„
„ „ 9 31.6	„	46	55	„	Kimura
„ „ 11 17.6	„	51	9	Kimura	Tanakadate
„ „ 13 31.8	„	53	19	Tanakadate	Kimura
„ „ 14 55.5	„	51	24	„	„
„ „ 16 9.1	„	50	20	„	„
„ „ 17 51.4	„	48	36	„	„
„ „ 19 35.6	„	48	21	„	„
„ „ 21 6.2	„	48	11	„	„
Mean	6°	48′	37″		

$\delta = 6°\ 48'.62$
Reduction to 1895.0 = 1.16
„ „ sea level = 0.00
$\delta = 6°\ 49'.78$

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ		Observer	Recorder
Sept. 16th 12h 51.0m		59°	19′.3	Tanakadate	Kimura
„ „ 17 9.8		„	16.5	„	„
„ 17th 7 0.7		„	16.2	„	Tanakadate
Mean		59°	17′.3		

$\theta = 59°\ 17'.3$
Reduction to 1895.0 = −1.21
„ „ sea level = 0.00
$\theta = 59°\ 16'.1$

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 16th 8h 40m	0.25763	455.19	21°.5C	6s.0909	23.1C	7° 39′ 2″.5	17° 25′ 28″.1	19.9C	Tanakadate / Kimura	Kimura / Tanakadate
„ „ 11 20	0.25801	454.04	26.0	6.0911	27.5	7 36 48.7	17 19 56.2	24.5	„ / Tanakadate	„ / Kimura
Mean	0.25782									

$H = 0.25782$
Reduction to 1895.0 = 101
„ „ sea level = 000
$H = 0.25783$

124. SŌYA.

Coast, near to Common School (小學校附近ノ海岸)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	17th	17h	37.8m	6°	38′	22″	Tanakadate	Tanakadate
"	"	18	40.2	"	38	49	"	"
"	"	20	19.3	"	38	35	"	"
"	"	22	20.7	"	37	35	"	"
"	18th	4	53.0	"	36	58	"	"
"	"	8	19.7	"	35	39	"	"
"	"	9	20.9	"	35	43	"	"
"	"	10	24.0	"	38	5	"	"
"	"	12	14.5	"	41	27	"	"
"	"	12	49.4	"	41	34	"	"
"	"	14	11.6	"	41	11	"	"
"	"	15	16.3	"	39	50	"	"
"	"	17	13.6	"	38	35	"	"
"	"	18	56.1	"	38	14	"	"
"	"	20	22.4	"	38	5	"	"
Mean				6°	38′	14″		

δ = 6° 38′.23

Reduction to 1895.0 = 1.13

" " sea level = 0.00

δ = 6° 39′.4

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	18th	11h	29.4m	2	59°	15′.8	Tanakadate	Tanakadate
"	"	16	16.8	—	"	13.2	"	"
"	"	19	47.4	—	"	14.9	"	"
Mean					59°	14′.6		

θ = 59° 14′.6

Reduction to 1895.0 = −1.15

" " sea level = 0.00

θ = 59° 13′.4

HORIZONTAL INTENSITY (*H*)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	18th	8h	43m	0.25753	455.88	20.1C	6.0828s	19.8C	7°38′59″.0	17°25′ 0″	20.4C	Tanakadate	Tanakadate
"	"	13	2	0.25762	454.39	23.9	6.0927	24.0	7 37 23.2	17 21 30.0	23.8	"	"
"	"	18	18	0.25750	456.10	18.0	6.0814	18.1	7 39 15.0	17 25 31.2	17.9	"	"
Mean				0.25758									

H = 0.25758

Reduction to 1895.0 = 081

" " sea level = 000

H = 0.25759

125. SARUBUTU.

Bank of Rivor Sarubutu (猿 拂 河 畔)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	δ			Observer	Recorder
Sept. 20th 10h 43.6m	7°	17′	11″	Tanakadate	Tanakadate
,, ,, 11 28.2	,,	18	0	,,	,,
,, ,, 12 19.9	,,	19	10	,,	,,
,, ,, 13 0.6	,,	21	3	,,	,,
,, ,, 14 2.2	,,	19	13	,,	,,
,, ,, 15 39.1	,,	17	16	,,	,,
,, ,, 17 41.2	,,	15	45	,,	,,
,, ,, 19 0.9	,,	15	23	,,	,,
,, 21st 6 7.7	,,	12	0	,,	,,
,, ,, 7 50.2	,,	11	49	,,	,,
,, ,, 8 58.9	,,	13	18	,,	,,
,, ,, 10 25.4	,,	16	33	,,	,,
,, ,, 11 26.6	,,	16	53	,,	,,
,, ,, 12 22.6	,,	19	0	,,	,,
,, ,, 13 27.8	,,	19	55	,,	,,
Mean	7°	15′	33″		

δ = 7 15′.60
Reduction to 1895.0 = 1.05
,, ,, sea level = 0.00
δ = 7 16′.7

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ		Observer	Recorder
Sept. 20th 17h 8.6m	—	59	1′.8	Tanakadate	Tanakadate
,, 21st 7 7.4	—	58	59.8	,,	,,
,, ,, 12 59.4		59	2.3	,,	,,
Mean		59	1′.3		

θ = 59 1′.3
Reduction to 1895.0 = −1.04
,, ,, sea level = 0.00
θ = 59 0′.3

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_n	Observer	Recorder
Sept. 20th 14h 51m	0.25716	455.22	20.8C	6.0925 s	21.0 C	7 38′ 33″.7	17 23′ 1″.4	20.8C	Tanakadate	Tanakadate
,, ,, 20 28	0.25777	456.13	18.1	6.0794	18.4	7 38 30.0	17 22 56.2	17.9	,,	,,
,, 21st 9 11	0.25767	456.16	18.2	6.0804	18.5	7 39 12.5	17 25 22.5	17.9	,,	,,
Mean	0.25753									

H = 0.25753
Reduction to 1895.0 = 065
,, ,, sea level = 000
H = 0.25754

126. ESASI.

Esasi office (戸長役場)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	22nd	17h	55.6m	7	2′	50″	Tanakadate	Tanakadate
,,	,,	18	28.0	,,	2	38	,,	,,
,,	,,	20	32.5	,,	2	14	,,	,,
,,	,,	23	19.2	,,	0	51	,,	,,
,,	23rd	3	42.2	,,	0	57	,,	,,
,,	,,	6	14.1	,,	0	6	,,	,,
,,	,,	7	0.4	6	59	39	,,	,,
,,	,,	8	50.3	7	0	11	,,	,,
,,	,,	9	29.5	,,	1	49	,,	,,
,,	,,	11	45.0	,,	3	2	,,	,,
,,	,,	12	46.0	,,	6	16	,,	,,
,,	,,	13	50.7	,,	4	26	,,	,,
,,	,,	15	10.1	,,	1	22	,,	,,
,,	,,	16	55.7	,,	1	45	,,	,,
,,	,,	18	7.2	,,	1	46	,,	,,
Mean				7	2′	6″		

δ = 7 2′.10

Reduction to 1895.0 = 0.94

,, ,, sea level = 0.00

δ = 7° 3′.0

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	22nd	22h	53.5m	—	59	38′.1	Tanakadate	Tanakadate
,,	23rd	16	10.1	—	,,	40.9	,,	,,
,,	,,	18	58.0	—	,,	39.8	,,	,,
Mean					59°	39′.5		

θ = 59 39′.6

Reduction to 1895.0 = −0.90

,, ,, sea level = 0.00

θ = 59° 38′.7

HORIZONTAL INTENSITY (*H*)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	23rd	8h	14m	0.25149	456.73	11.0C	s 6.1610	10.4C	7°50′54″.0	17°52′29″.0	11.5C	Tanakadate	Tanakadate
,,	,,	14	37	0.25211	453.69	22.6	6.1653	23.3	7 46 52.5	17 43 21.2	22.1	,,	,,
,,	,,	17	35	0.25187	455.28	17.2	6.1568	17.9	7 49 7.5	17 48 37.5	16.6	,,	,,
Mean				0.25182									

H = 0.25182

Reduction to 1895.0 = 034

,, ,, sea level = 000

H = 0.25182

127. PORONAI.

Ekiden (驛 傳)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	25th	0h	33.2m	6	9′	15″	Tanakadate	Tanakadate
,,	,,	5	32.0	,,	9	8	,,	,,
,,	,,	6	44.6	,,	8	22	,,	,,
,,	,,	7	55.6	,,	8	21	,,	,,
,,	,,	9	25.7	,,	9	56	,,	,,
,,	,,	10	45.1	,,	11	3	,,	,,
,,	,,	11	38.6	,,	10	59	,,	Kimura
,,	,,	12	20.3	,,	11	38	,,	,,
,,	,,	13	17.7	,,	11	17	,,	,,
,,	,,	14	5.1	,,	10	57	Kimura	Tanakadate
,,	,,	15	21.5	,,	10	25	,,	,,
,,	,,	16	30.7	,,	10	5	,,	,,
,,	,,	17	27.8	,,	10	14	,,	,,
,,	,,	18	49.3	,,	10	26	,,	,,
,,	,,	20	37.5	,,	8	36	,,	,,
,,	,,	22	3.5	,,	8	56	Tanakadate	Kimura
,,	26th	6	38.8	,,	8	32	Kimura	,,
Mean				6	6′	45″		

	δ = 6	9′.75
Reduction to	1895.0 =	0.85
,, ,,	sea level =	0.00
	δ = 6°	10′.6

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	25th	15h	0.8m	2	58	14′.3	Kimura	Tanakadate
,,	,,	19	54.8	2	,,	14.5	Tanakadate	Kimura
,,	26th	8	47.5	2	,,	14.4	Kimura	Tanakadate
Mean					58	14′.4		

	θ = 58°	14′.4
Reduction to	1895.0 =	−0.75
,, ,,	sea level =	0.00
	θ = 58°	13′.6

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	25th	8h	41m	0.26182	454.81	21.0C	6.0427s	22.1C	7 30′52″.5	17 6′11″.2	20.0C	Tanakadate	Tanakadate
,,	,,	11	58	0.26184	453.41	26.2	6.0502	26.4	7 28 58.1	17 1 37.5	26.1	Kimura / Tanakadata	,, / Kimura
,,	,,	17	4	0.26170	453.73	23.4	6.0503	24.0	7 29 55.0	17 4 7.5	22.8	,, / Kimura	,, / Tanakadate
,,	26th	7	35	0.26198	456.33	16.6	6.0279	16.6	7 31 51.3	17 8 40.0	16.7	,, / Tanakadate	,, / Kimura
Mean				0.26184									

	H =	0.26184
Reduction to	1895.0 =	051
,, ,,	sea level =	000
	H =	0.26185

128. MONBETU.

Common School (小學校)

DECLINATION (δ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	27th	17h	57.7m	5	59′	1″	Tanakadate	Kimura
,,	,,	19	34.6	,,	57	53	,,	,,
,,	,	20	51.6	,,	59	11	,,	,,
,,	,,	21	50.6	,,	59	16	Kimura	,,
,,	,,	23	26.8	,,	58	45	,,	,,
,,	28th	1	39.8	,,	57	52	,,	,,
,,	,,	3	45.8	,,	57	21	,,	,,
,,	,,	4	34.9	,,	55	27	,,	,,
,,	,,	6	27.9	,,	57	35	Tanakadate	,,
,,	,,	7	38.1	,,	57	14	Kimura	Tanakadate
,,	,,	8	55.0	,,	58	42	Tanakadate	Kimura
,,	,,	10	4.6	,,	59	56	,,	,,
,,	,,	11	2.9	6	1	14	Kimura	Tanakadate
,,	,,	12	6.0	,,	3	9	Tanakadate	Kimura
,	,,	12	35.0	,,	3	54	,,	,,
,,	,,	14	0.0	,,	2	57	,,	,,
,,	,,	15	0.6	,,	2	19	,,	,,
,,	,,	16	49.1	,,	1	22	,,	,,
,,	,,	17	34.3	,,	0	41	Kimura	Tanakadate
,,	,,	18	49.6	5	58	16	,,	,,
Mean				5	59′	37″		

δ = 5 59′.62
Reduction to 1895.0 = 0.77
,, ,, sea level = 0.00
δ = 5° 0′.4

DIP (θ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	27th	20h	10.1m	-	57°	53′.3	Kimura	Tanakadate
,,	28th	7	9.0	2	,,	52.6	Tanakadate	Kimura
,,	,,	10	37.0	—	,,	54.8	Kimura	Tanakadate
Mean					57	53′.6		

θ = 57 53′.6
Reduction to 1895.0 = −0.63
,, ,, sea level = 0.00
θ = 57° 53′.0

HORIZONTAL INTENSITY (H)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept	28th	8h	29m	0.26202	457.36	13.3C	6.0208 s	13.1C	7°32′37″.0	17° 9′59″.0	13.4C	Kimura Tanakadate	Tanakadate Kimura
,,	,,	13	34	0.262[illegible]	455.13	19.2	6.0363	19.7	7 30 42.5	17 5 54.3	18.8	,, Kimura	,, Tanakadate
,,	,,	18	23	0.26289	458.96	12.0	6.6012	12.4	7 33 11.2	17 11 13.0	11.6	,, Tanakadate	,, Kimura
Mean				0.26232									

H = 0.26232
Reduction to 1895.0 = −0.21
,, ,, sea level = 0.00
H = 0.25232

129. YŪBETU.

DIP (θ)
Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	29th	17h	58.2m	-	57°	43′.1	Kimura	Tanakadate

θ = 57° 43′.1
Reduction to 1895.0 = −0.54
,, ,, sea level = 0.00
θ = 57 42′.6

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of* M

Observations of the North Party, 1891.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Sept. 29th 17^h 27^m	*0.26289	456.00	16.5C	^{s}6.0199	16.5C		—	—	Tanakadate	Kimura

$H=$ 0.26289
Reduction to 1895.0 = −014
,, ,, sea level = 000
$H=$ 0.26289

130. NOGAMI.

South West of Ekiden No. 18. (驛傳十八號ノ西南)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	30th	14^h	9.3^m	5	59′	59″	Tanakadate	Kimura
,,	,,	15	13.6	,,	57	51	,,	,,
,,	,,	17	8.5	,,	56	55	,,	,,
,,	,,	18	11.7	,,	57	30	Kimura	Tanakadate
,,	,,	19	19.9	,,	56	49	Tanakadate	Kimura
,,	,,	21	17.0	,,	57	9	,,	,,
Oct.	1st	3	57.8	,,	56	30	,,	Tanakadate
,,	,,	5	54.8	,,	54	59	Kimura	Kimura
,,	,,	6	47.8	,,	55	13	,,	,,
,,	,,	7	45.3	,,	53	46	,,	,,
,,	,,	8	31.1	,,	53	38	,,	,,
,,	,,	9	45.6	,,	55	21	,,	,,
,,	,,	10	56.8	,,	57	44	,,	,,
,,	,,	12	3.8	6	0	50	,,	,,
,,	,,	12	59.4	,,	0	56	Tanakadate	,,
Mean				5	57′	57″		

$\delta=5$ 56.95
Reduction to 1895.0 = 0.69
,, ,, sea level = −0.01
$\delta=5$ 57.6

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	30th	15^h	46.3^m	—	57	29.4	Kimura	Tanakadate
Oct.	1st	7	23.5	—	,,	30.0	Tanakadate	Kimura
,,	,,	11	23.5	—	,,	31.8	,,	,,
Mean					57	30.4		

$\theta=57$ 30.4
Reduction to 1895.0 = −0.51
,, ,, sea level = 0.02
$\theta=57$ 29.9

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Sept. 30th 15^h 4^m	0.26418	455.99	16.6C	^{s}6.0853	15.7C	7 27′ 17.″5	16 58′ 58.″8	15.6C	Kimura / Tanakadate	Tanakadate / Kimura
,, ,, 18 53	0.26381	456.48	14.8	6.0068	15.2	7 28 55.6	17 1 30.0	14.5	,, / Kimura	,, / Tanakadate
Oct. 1st 8 13	0.26351	457.65	9.8	6.0023	10.1	7 30 47.5	17 5 59.4	9.6	Tanakadate / Kimura	Kimura / Tanakadate
Mean	0.26383									

$H=$ 0.26383
Reduction to 1895.0 = −011
,, ,, sea level = 117
$H=$ 0.26384

131. AINONAI.

North West of Ekiden (驛 傳 ノ 西 北)

DECLINATION (δ)

Observations of the North Party, 1894.

Daet and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	2nd	16h	35.0m	5	19′	11″	Tanakadate	Tanakadate
,,	,,	17	25.9	,,	18	15	,,	,,
,,	,,	19	48.2	,,	18	18	,,	,,
,,	,,	22	24.2	,,	17	37	,,	,,
,,	3rd	1	36.6	,,	16	12	,,	,,
,,	,,	5	57.2	,,	16	7	,,	,,
,,	,,	6	54.8	,,	15	3	,,	,,
,,	,,	8	43.8	,,	12	15	,,	,,
,,	,,	9	26.5	,,	15	42	,,	,,
,,	,,	10	53.2	,,	18	27	,,	,,
,,	,,	12	13.3	,,	51	13	,,	,,
,,	,,	13	40.5	,,	51	56	,,	,,
,,	,,	14	28.8	,,	52	22	,,	,,
,,	,,	15	49.6	,,	54	0	,,	,,
,,	,,	16	47.7	,,	19	0	,,	,,
,,	,,	17	26.0	,,	18	25	,,	,,
Mean				5	17′	54″		

	δ=5	17.′90
Reduction to	1895.0=	0.64
,, ,,	sea level=	−0.02
	δ=5	18.′5

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Oct.	2nd	19h	3.2m	—	57	11.′8	Tanakadate	Tanakadate
,,	3th	10	16.9		,,	14.9	,,	,,
,,	,,	15	7.6	2	,,	11.3	,,	,,
Mean					57	12.′7		

	θ=57	12.′7
Reduction to	1895.0=	−0.44
,, ,,	sea level=	0.04
	θ=57	12.′3

HORIZONTAL INTENSITY (H)

(* *Value deduced form Vibration only by assuming Vaque M*)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Oct.	2rd	21h	50m	*0.26389	456.40	13.°8C	s 5.9781	14.°4C	(7°28′36.″2	17° 0′40.″0	13.8C)	Tanakadate	Tanakadate
,,	3th	8	8	*0.26405	456.60	13.3	5.9847	13.3	(7 28 47.5	17 1 32.5	13.4)	,,	,,
,,	,,	13	5	0.26389	455.05	20.4	6.0147	20.6	7 27 10.0	16 57 24.0	20.3	,,	,,
Mean				0.26394									

	H=	0.26394
Reduction to	1895.0=	−657
,, ,,	sea level=	291
	H=	0.26396

132. ABASIRI.

Abasiri Meteorological Observatory (網走測候所)

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	4th	21h	31.1m	4°	42′	0″	Tanakadate	Tanakadate
,,	,,	23	29.6	,,	41	35	,,	,,
,,	5th	2	53.2	,,	39	36	,,	,,
,,	,,	6	15.1	,,	39	29	,,	,,
,,	,,	7	37.8	,,	40	10	,,	,,
,,	,,	9	24.1	,,	38	44	,,	,,
,,	,,	10	27.5	,,	40	55	,,	,,
,,	,,	11	56.2	,,	45	20	,,	,,
,,	,,	12	50.4	,,	47	55	,,	,,
,,	,,	14	18.5	,,	48	9	,,	,,
,,	,,	15	15.6	,,	47	19	,,	,,
,,	,,	16	56.4	,,	41	33	,,	,,
,,	,,	17	57.6	,,	44	41	,,	,,
,,	,,	19	30.0	,,	42	38	,,	,,
,,	,,	20	22.4	,,	43	0	,,	,,
,,	,,	21	45.3	,,	43	53	,,	,,
,,	,,	23	1.7	,,	42	18	,,	,,
Mean				4	42′	32″		

$\delta = 4°\ 42'.53$
Reduction to 1895.0 = 0.59
,, ,, sea level = 0.00
$\delta = 4\ \ 43'.1$

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Oct.	5th	11h	15.4m	—	57	11.9	Tanakadate	Tanakadate
,,	,,	16	7.0	—	,,	10.9	,,	,,
,,	,,	21	10.9	—	,,	11.1	,,	,,
Mean					57	11.3		

$\theta = 57\ \ 11'.3$
Reduction to 1895.0 = -0.39
,, ,, sea level = 0.00
$\theta = 57°\ 10'.9$

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
							s						
Oct.	5th	8h	44m	0.26665	455.67	12°.9C	5.9717	12°.7C	7 24′ 10″.6	16 50′ 25″.0	13°.1C	Tanakadate	Tanakadate
,,	,,	13	38	0.26726	456.40	13.6	5.9666	13.7	7 23 15.6	16 48 36.2	13.6	,,	,,
,,	,,	22	28	0.26665	457.31	6.9	5.9691	7.4	7 25 26.2	16 53 44.4	6.5	,,	,,
Mean				0.26685									

$H = 0.26685$
Reduction to 1895.0 = $-.0^4 1$
,, ,, sea level = $.0^4 0$
$H = 0.26684$

133. SYARI.

Coast, South West of Hotel Kikuti （菊池ホテルノ西南ナル海濱）

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	7^{th}	9^{h}	44.3^{m}	5	31′	15″	Tanakadate	Tanakadate
,,	,,	10	45.8	,,	31	27	,,	,,
,,	,,	11	45.4	,,	36	13	,,	,,
,,	,,	12	18.6	,,	37	20	,,	,,
,,	,,	14	11.4	,,	40	10	,,	,,
,,	,,	15	43.0	,,	37	47	,,	,,
,,	,,	17	4.9	,,	36	10	,,	,,
,,	,,	18	23.4	,,	35	0	,,	,,
,,	,,	19	15.4	,,	36	23	,,	,,
,,	,,	21	10.4	,,	34	18	,,	,,
,,	,,	23	26.8	,,	35	29	,,	,,
,,	8^{th}	1	1.4	,,	34	49	,,	,,
,,	,,	5	11.6	,,	34	11	,,	,,
,,	,,	7	54.3	,,	32	52	,,	,,
,,	,,	9	12.0	,,	31	51	,,	,,
,,	,,	9	47.3	,,	31	48	,,	,,
Mean				5	35′	13″		

$\delta = 5° \ 35'.22$

Reduction to 1895.0 = 0.52

,, ,, sea level = 0.00

$\delta = 5° \ 35'.7$

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Oct.	7^{th}	11^{h}	22.2^{m}	—	57°	32′.3	Tanakadate	Tanakadate
,,	,,	16	30.7	—	,,	29.9	,,	,,
,,	8^{th}	7	28.7	—	,,	29.9	,,	,,
Mean					57	30′.7		

$\theta = 57° \ 30'.7$

Reduction to 1895.0 = −0.33

,, ,, sea level = 0.00

$\theta = 57° \ 30'.4$

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Oct.	7^{th}	13^{h}	41^{m}	0.26257	456.29	16.9C	6.0228 s	17.4C	7 34′50″.0	17 5′53″.8	16.4C	Tanakadate	Tanakadate
,,	,,	20	45	0.26180	457.87	7.5	6.0298	8.0	7 33 12.5	17 12 16.2	7.0	,,	,,
,,	,,	8	11	0.26235	455.98	12.3	6.0175	11.6	7 31 38.7	17 7 54.3	13.1	,,	,,
Mean				0.26224									

$H = 0.26224$

Reductions to 1895.0 = −106

,, ,, sea level = 0.00

$H = 0.26223$

134. RAUSU.

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Oct. 11th 9h 30.2m	4 53′ 26″	Tanakadate	Tanakadate
,, ,, 10 8.6	,, 53 53	,,	,,
,, ,, 11 17.0	,, 55 35	,,	,,
,, ,, 13 0.0	,, 58 17	,,	,,
,, ,, 14 33.2	,, 58 40	,,	,,
,, ,, 15 40.0	,, 57 4	,,	,,
,, ,, 16 43.4	,, 55 42	,,	,,
,, ,, 18 14.7	,, 55 32	,,	,,
,, ,, 19 35.2	,, 55 33	,,	,,
,, ,, 22 0.4	,, 55 33	,,	,,
,, 12th 2 54.2	,, 54 26	,,	,,
,, ,, 6 9.0	,, 54 47	,,	,,
,, ,, 7 12.8	,, 54 12	,,	,,
,, ,, 8 14.1	,, 53 30	,,	,,
,, ,, 9 28.3	,, 52 57	,,	,,
,, ,, 10 19.1	,, 53 38	,,	,,
Mean	4 55′ 21″		

$\delta = 4^\circ$ 55′.40

Reduction to 1895.0 = 0.48

,, ,, sea level = 0.00

$\delta = 4^\circ$ 55′.9

DIP (θ)

Observations of the North Party, 1894.

Date and Hour Mean Local Time.	Needle No.	θ	Observer	Recorder
Oct. 11th 12h 23.9m	—	57 18.5	Tanakadate	Tanakadate
,, ,, 17 35.6	—	,, 17.8	,,	,,
,, 12th 7 45.4	—	,, 17.8	,,	,,
Mean		57 18.0		

$\theta = 57$ 18.0

Reduction to 1895.0 = −0.27

,, ,, sea level = 0.00

$\theta = 57$ 17.7

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Oct. 11th 13h 59m	0.26396	456.11	15.9 C	6.0061 s	15.7 C	7 27′58″.8	16°59′ 5″.0	16.1 C	Tanakadate	Tanakadate
,, ,, 21 18	0.26373	455.50	12.8	6.0070	13.1	7.29 3.1	17 1 43.4	12.5	,,	,,
,, 12th 8 59	0.26384	455.28	15.7	6.0050	14.9	7.28 8.1	16 59 33.1	13.6	,,	,,
Mean	0.26384									

$H =$ 0.26384

Reduction to 1895.0 = −123

,, ,, sea level = 000

$H =$ 0.26383

Rausu Syuttyō (羅臼出張)

Crater (羅臼噴火口)

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Oct. 11th 15h 18.5m		56 48.5	Tanakadate	Tanakadate

135. SIBETU.

DECLINATION (δ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	14th	13h	22.0m	5°	5′	32″	Tanakadate	Tanakadate
,,	,,	17	23.7	,,	5	33	,,	,,
,,	,,	18	43.0	,,	5	35	,,	,,
,,	,,	20	14.8	,,	6	44	,,	,,
,,	,,	22	31.8	,,	4	25	,,	,,
,,	15th	2	10.5	,,	3	7	,,	,,
,,	,,	5	57.0	,,	3	0	,,	,,
,,	,,	6	34.3	,,	3	15	,,	,,
,,	,,	7	59.5	,,	4	37	,,	,,
,,	,,	8	27.0	,,	3	38	,,	,,
,,	,,	9	58.1	,,	4	53	,,	,,
,,	,,	11	0.5	,,	6	21	,,	,,
,,	,,	12	32.0	,,	7	26	,,	,,
,,	,,	14	13.3	,,	6	28	,,	,,
,,	,,	15	35.9	,,	4	40	,,	,,
,,	,,	17	3.4	,,	4	44	,,	,,
,,	,,	18	29.8	,,	5	12	,,	,,
,,	,,	20	13.1	,,	4	43	,,	,,
,,	,,	21	28.6	,,	4	21	,,	,,
Mean				5°	4′	8″		

		δ = 5° 4′.13
Reduction to	1865.0 =	0.43
,, ,,	sea level =	0.00
		δ = 5° 4′.6

DIP (θ)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Oct.	15th	11h	0.0m	—	57°	16′.6	Tanakadate	Tanakadate
,,	,,	16	25.7	—	,,	16.1	,,	,,
,,	,,	20	56.4	—	,,	18.0	,,	,,
Mean					57°	16′.9		

		θ = 57° 16′.9
Reduction to	1895.0 =	−0.19
,, ,,	sea level =	0.00
		θ = 57° 16′.7

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1894.

Date and Hour (Mean Local Time.)				H	M'	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Oct.	14th	21h	48m	0.26173	456.10	15.4C	s 6.0320	15.5C	7 31′48″.7	17 7′56″.2	15.3C	Tanakadate	Tanakadate
,,	15th	9	26	0.26169	453.26	14.0	6.0328	14.5	7 32 10.0	17 8 35.0	13.5	,,	,,
,,	,,	13	43	0.26208	456.26	12.7	6.0279	13.2	7 31 55.0	17 8 38.7	12.3	,,	,,
,,	,,	19	30	0.26170	457.17	9.2	6.0262	9.6	7 33 26.2	17 11 58.8	8.8	,,	,,
Mean				0.23181									

		H = 0.26181
Reduction to	1895.0 =	− 124
,, ,,	sea level =	0.0
		H = 0.26180

136. HAKODATE.

Aza Omorihama (字大森濱商業學校附屬地)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time)				δ			Observer	Recorder
July	2nd	20h	27.1m	5°	43′	56″	Imamura	Imamura
..	,,	21	23.9	..	41	29	..	..
,,	..	23	15.2	..	41	13	..	..
..	3rd	1	1.6	..	41	23	Nakamura	Nakamura
..	..	5	40.7	..	40	57	..	..
..	..	6	12.0	..	43	18	..	..
..	..	7	41.7	..	42	54	..	..
..	..	8	39.0	..	44	34	Imamura	..
,,	..	9	36.4	..	41	45	Nakamura	Imamura
..	,,	10	36.5	..	46	46	..	,,
..	..	11	38.2	..	47	55	..	,,
..	..	11	46.5	.	47	50	..	..
..	..	13	3.0	..	48	19	Imamura	..
..	..	14	16.9	..	48	28	Nakamura	..
..	..	15	48.9	..	46	48	Imamura	..
..	..	17	32.8	..	44	11	Nakamura	..
..	..	18	16.5	..	43	11	..	Nakamura
..	..	19	41.0	..	42	51	..	..
..	..	20	28.7	..	42	19	..	..
..	,,	20	49.5	..	43	53	..	..
..	..	22	18.5	..	44	12	..	..
..	4th	6	41.0	..	41	12	..	..
Mean				5°	44′	34″		

δ = 5° 44.57
Reduction to 1895.0 = 1.40
,, ,, sea level = 0.00
δ = 5° 46.0

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	3rd	9h	11m	2	55°	34.8	Nakamura	Imamura
..	..	17	12	2	..	29.7	Imamura	Nakamura
.,	4th	7	5.0	-	..	31.3	Nakamura	Imamura
.,	,,	12	57	2	..	34.9	Imamura	..
Mean					55°	32.7		

θ = 55° 32.7
Reduction to 1895.0 = −1.10
,, ,, sea level = 0.00
θ = 55° 31.5

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	3rd	11h	17m	0.27438	444.25	23.9C	s 6.0163	23.5C	6 58′35″0	15 57′45″0	24.3C	Nakamura	Imamura
,,	..	15	13	0.27409	444.79	24.1	6.0213	24.8	6 59 27.0	15 58 22.5	23.5	Imamura	Nakamura
..	4th	9	37	0.27426	443.74	24.1	6.0256	24.3	6 58 33.1	15 57 3.1	24.0	..	..
..	..	14	20	0.27480	443.12	27.8	6.0261	28.9	6 57 16.8	15 53 48.8	26.8	Nakamura	Imamura
,,	.,	14	41	0.27486	442.98	28.0	6.0231	28.9	6 57 0.0	15 53 20.6	27.1	,,	..
Mean				0.27454									

H = 0.27454
Reduction to 1895.0 = 2
,, ,, sea level = 0.0
H = 0.27456

137. MORI.

Race ground (戸長役場ノ後方競馬場)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	6th	14h	59.7m	5	43′	47″	Nakamura	Imamura
"	"	15	47.1	"	42	49	"	Nakamura
"	"	16	51.5	"	41	5	Imamura	"
"	"	17	44.2	"	39	59	"	"
"	"	18	21.0	"	39	28	Nakamura	Imamura
"	"	20	0.7	"	40	36	"	"
"	"	21	36.8	"	40	1	"	Nakamura
"	7th	0	59.7	"	38	56	"	"
"	"	4	39.2	"	35	36	"	"
"	"	6	7.2	"	34	33	"	"
"	"	7	12.8	"	33	21	"	"
"	"	8	10.0	"	34	11	"	"
"	"	9	9.2	"	35	31	Imamura	Imamura
"	"	10	9.8	"	39	21	Nakamura	"
"	"	12	0.1	"	42	23	Imamura	Nakamura
"	"	12	11.3	"	42	29	"	"
"	"	13	27.0	"	42	39	"	Imamura
"	"	14	15.6	"	42	13	Nakamura	Nakamura
"	"	14	55.8	"	41	40	"	Imamura
"	"	15	48.6	"	40	43	"	"
Mean				5°	39′	6″		

$\delta = 5°\ 39.'10$

Reduction to 1895.0 = 1.42

" " sea level = 5° 0.00

$\delta = 5°\ 40.'5$

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time)				Needle No.	θ		Observer	Recorder
July	6th	19h	28m	2	56°	17.′4	Imamura	Imamura
"	7th	7	45	2	"	13.6	Nakamura	Nakamura
"	"	8	39	2	"	16.2	"	"
"	"	12	57	2	"	16.2	Imamura	Imamura
"	"	14	39	2	"	14.3	Nakamura	Nakamura
Mean					56°	15.′5		

$\theta = 56\ 15.'5$

Reduction to 1895.0 = −1.27

" " sea level = 0.00

$\delta = 56°\ 14.'2$

HORIZONTAL INTENSITY (*H*)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	6th	16h	28m	0.27201	443.55	24.9C	6.0532 s	25.8C	7 2′11.″9	16° 5′49.″4	24.0C	Nakamura	Imamura
"	"	20	53	0.27145	445.21	19.4	6.0475	20.0	7 4 25.0	16 10 31.9	18.8	Imamura	Nakamura
"	7th	11	31	0.27184	441.76	28.9	6.0534	29.2	7 0 25.0	16 1 35.0	28.7	"	"
"	"	15	33	0.27185	443.20	24.6	6.0565	25.0	7 1 59.4	16 5 19.4	24.1	Nakamura	Imamura
Mean				0.27179									

H = 0.27179

Reduction to 1895.0 = 222

" " sea level = 000

H = 0.27181

138. SETANA.

Goryōkyoku Syuttyōsho (御料局出張所)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	11th	22h	10.0m	6°	1′	11″	Nakamura	Imamura
,,	12th	4	20.4	,,	1	29	Imamura	,,
,,	,,	5	42.9	,,	0	11	Nakamura	Nakamura
,,	,,	6	33.8	5	59	11	,,	,,
,,	,,	7	34.0	,,	59	5	Imamura	,,
,,	,,	9	1.3	,,	58	5	Nakamura	Imamura
,,	,,	9	16.8	,,	58	56	Imamura	Nakamura
,,	,,	10	38.4	6	3	27	,,	,,
,,	,,	11	20.3	,,	6	2	Nakamura	,,
,,	,,	12	11.9	,,	7	3	,,	Imamura
,,	,,	13	16.9	,,	7	35	,,	,,
,,	,,	14	31.9	,,	7	44	,,	Nakamura
,,	,,	15	33.2	,,	7	24	,,	,,
,,	,,	15	41.9	,,	7	37	,,	,,
,,	,,	16	42.4	,,	4	54	Imamura	,,
,,	,,	17	44.8	,,	3	46	Nakamura	Imamura
,,	,,	19	2.6	,,	4	35	Imamura	Nakamura
,,	,,	20	8.1	,,	4	32	Nakamura	Imamura
,,	,,	20	59.3	,,	4	55	,,	,,
,,	,,	22	5.2	,,	4	54	,,	Nakamura
,,	,,	23	17.0	,,	1	22	Imamura	,,
,,	13th	4	35.8	,,	2	13	Nakamura	,,
Mean				6	3′	52″		

δ = 6° 3′.87

Reduction to 1895.0 = 1.55

,, ,, sea level = 0.00

δ = 6° 5′.4

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	13th	10h	19m	2	56°	14′.9	Imamura	Nakamura
,,	,,	11	55	2	,,	15.3	Nakamura	Imamura
,,	,,	15	1	2	,,	13.0	,,	Nakamura
,,	,,	18	34	2	,,	11.9	Imamura	,,
Mean					56°	13′.8		

θ = 56° 13′.8

Reduction to 1895.0 = −1.56

,, ,, sea level = 0.00

θ = 56° 12′.2

HORIZONTAL INTENSITY (*H*)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vib^2.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	13th	8h	40m	0.27376	443.03	24°.2 C	s 6.0332	23°.3 C	6°58′19″.4	15°56′30″.6	25°.0 C	Imamura	Nakamura
,,	,,	13	48	0.27409	443.40	26.7	6.0315	27.6	6 58 8.1	15 55 15.6	25.9	Nakamura	Imamura
,,	,,	17	26	0.27391	443.55	22.9	6.0312	23.3	6 58 57.5	15 57 55.6	22.5	Imamura	Nakamura
,,	,,	20	38	0.27395	445.29	18.9	6.0187	19.3	7 0 38.1	16 1 49.4	18.5	Nakamura	Imamura
Mean				0.27393									

H = 0.27393

Reduction to 1895.0 = 321

,, ,, sea level = 000

H = 0.27396

139. KUTO.

Police station (警察署構内東隅)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	15th	17h	55.0m	6°	26'	32"	Imamura	Nakamura
"	"	18	34.4	"	26	20	Nakamura	Imamura
"	"	19	22.9	"	26	29	Imamura	Nakamura
"	"	21	18.3	"	25	18	"	"
"	"	22	42.1	"	25	25	Nakamura	Imamura
"	16th	0	16.3	"	25	31	Imamura	"
"	"	1	32.6	"	24	36	"	"
"	"	5	21.7	"	22	24	Nakamura	Nakamura
"	"	6	39.0	"	19	56	"	"
"	"	8	31.7	"	18	30	Imamura	Imamura
"	"	9	13.6	"	20	31	"	Nakamura
"	"	10	11.2	"	23	35	Nakamura	Imamura
"	"	11	6.5	"	25	20	"	"
"	"	11	51.8	"	26	48	"	"
"	"	13	7.1	"	28	11	Imamura	"
"	"	13	59.1	"	28	24	"	Nakamura
"	"	19	20.2	"	25	14	Nakamura	"
"	"	20	28.0	"	25	0	Imamura	"
Mean				6	24'	34"		

$\delta = 6°\ 24'.57$
Reduction to 1895.0 = 1.45
" " sea level = 0.00
$\delta = 6°\ 26'.0$

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	15th	18h	15m	2	56°	6'.8	Nakamura	Nakamura
"	"	23	39	2	"	7.7	Imamura	Imamura
"	16th	10	39	2	"	2.3	Nakamura	"
"	"	16	38	2	"	4.2	Imamura	Nakamura
"	17th	9	16	—	"	9.6	Nakamura	"
Mean					56	6'.1		

$\theta = 56°\ 6'.1$
Reduction to 1895.0 = −1.48
" " sea level = 0.00
$\theta = 56°\ 4'.6$

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M*)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	15th	22h	4m	0.27300	443.46	24.1C	s 6.0409	24.2C	7° 0' 16".2	16° 1' 10".6	24.1C	Nakamura	Imamura
"	16th	9	43	*0.27275	443.20	25.2	6.0453	25.2	(6 59 42.5	16 0 52.5	24.7)	Imamura	Nakamura
"	"	12	1	0.27299	442.97	25.8	6.0457	26.1	6 59 45.6	15 59 40.6	25.4	Nakamura	Imamura
"	"	14	39	*0.27338	441.90	29.0	6.0475	29.0	(6 58 18.1	15 57 30.6	27.5)	Imamura	Nakamura
Mean				0.27303									

H = 0.27303
Reduction to 1895.0 = 315
" " sea level = 000
H = 0.27396

140. ESASI.

Syōkonsya (招魂社内)

DECLINATION (δ)
Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	18th	23h	54.6m	6	3′	37″	Nakamura	Imamura
,,	19th	4	3.9	,,	3	11	,,	Nakamura
,,	,,	4	39.6	,,	2	41	Imamura	Imamura
,,	,,	6	17.3	,,	1	41	,,	,,
,,	,,	7	21.4	,,	0	31	,,	,,
,,	,,	8	17.6	,,	2	0	Nakamura	Nakamura
,,	,,	9	31.2	,,	6	7	,,	Imamura
,,	,,	10	59.0	,,	10	36	Imamura	,,
,,	,,	11	50.4	,,	12	16	Nakamura	,,
,,	,,	12	48.8	,,	13	30	,,	Nakamura
,,	,,	13	41.1	,,	13	25	,,	,,
,,	,,	14	51.9	,,	12	3	,,	,,
,,	,,	16	4.5	,,	10	17	,,	,,
,,	,,	17	23.1	,,	8	0	Imamura	,,
,,	,,	18	24.2	,,	6	37	,,	,,
,,	,,	19	32.3	,,	6	11	,,	Imamura
,,	,,	20	41.6	,,	4	52	,,	,,
,,	,,	21	40.1	,,	2	12	,,	,,
,,	,,	22	53.0	,,	3	38	,,	,,
,,	20th	1	57.1	,,	3	21	,,	Nakamura
,,	,,	6	1.8	5	59	59	Nakamura	,,
,,	,,	7	7.9	6	0	53	,,	,,
Mean				6°	6′	8″		

$\delta = 6° \quad 6'.13$
Reduction to 1895.0 = 1.36
,, ,, sea level = 0.00
$\delta = 6° \quad 7'.5$

DIP (θ)
Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	19th	10h	37m	2	55	55.0	Imamura	Imamura
,,	,,	14	27	2	,,	57.0	Nakamura	Nakamura
,,	,,	18	7	2	,,	58.1	,,	Imamura
,,	,,	22	25	2	,,	56.0	Imamura	,,
Mean					55°	56′.5		

$\theta = 55° \quad 56'.5$
Reduction to 1895.0 = −1.27
,, ,, sea level = 0.00
$\theta = 55° \quad 55'.3$

HORIZONTAL INTENSITY (H)
Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibg.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	19th	9h	5m	0.27293	442.56	25.1C	s 6.0177	25.0C	6 59′49″.4	16 0′43″.4	25.1C	Imamura	Nakamura
,,	,,	12	18	0.27245	442.95	24.3	6.0503	24.3	7 0 30.6	16 1 37.5	24.3	Nakamura	Imamura
,,	,,	17	2	0.27270	442.87	26.5	6.0196	27.1	6 59 45.6	15 59 9.4	25.9	Imamura	Nakamura
Mean				0.27269									

$H = 0.27269$
Reduction to 1895.0 = 270
,, ,, sea level = 000
$H = 0.27272$

141. HUKUYAMA.

Common School (小 學 校)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	21st	10h	44.0m	5	50′	1″	Nakamura	Imamura
,,	,,	11	54.9	,,	51	18	,,	,,
,,	,,	13	23.0	,,	52	54	Imamura	Nakamura
,,	,,	14	13.8	,,	52	58	Nakamura	,,
,,	,,	15	21.7	,,	51	31	Imamura	,,
,,	,,	16	31.8	,,	49	38	Nakamura	Imamura
,,	,,	17	37.1	,,	47	8	Imamura	,,
,,	,,	18	56.1	,,	45	11	,,	,,
,,	,,	20	4.5	,,	44	17	Nakamura	Nakamura
,,	,,	21	6.1	,,	46	3	Imamura	,,
,,	,,	22	5.2	,,	47	13	Nakamura	Imamura
,,	,,	23	5.6	,,	47	17	Imamura	Nakamura
,,	22nd	0	23.6	,,	47	0	,,	Imamura
,,	,,	1	41.6	,,	47	28	Nakamura	Nakamura
,,	,,	6	11.1	,,	44	20	,,	,,
,,	,,	7	20.5	,,	45	16	,,	,,
,,	,,	8	41.0	,,	45	53	,,	,,
,,	,,	9	56.2	,,	46	46	,,	,,
Mean				5°	47′	43″		

$\delta = 5°\ 47'.72$

Reduction to 1895.0 = 1.25

,, ,, sea level = 0.00

$\delta = 5°\ 49'.0$

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	21st	8h	27m	2	55°	7′.1	Nakamura	Nakamura
,,	,,	14	48	2	,,	5.0	Imamura	Imamura
,,	,,	17	9	2	,,	5.5	Nakamura	,,
,,	,,	20	41	2	,,	10.4	Imamura	,,
Mean					55°	7′.0		

$\theta = 55°\ 7'.0$

Reduction to 1895.0 = −1.13

,, ,, sea level = 0.00

$\theta = 55°\ 5'.9$

HORIZONTAL INTENSITY (*H*)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	21st	11h	24m	0.27750	440.12	31°.0C	6.0144 s	31°.1C	6°50′16″.9	15°38′15″.0	30°.9C	Nakamura	Imamura
,,	,,	16	11	0.27780	440.91	29.7	6.0088	31.2	6 51 33.8	15 41 55.6	28.3	Imamura	Nakamura
,,	,,	21	45	0.27753	442.36	26.1	5.9993	26.5	6 52 26.3	15 42 56.0	25.7	Nakamura	Imamura
,,	22nd	9	27	0.27774	440.77	30.6	6.00[illegible]0	30.8	6 50 29.4	15 38 25.0	30.4	Imamura	Nakamura
Mean				0.27764									

$H = 0.27764$

Reduction to 1895.0 = 257

,, ,, sea level = 000

$H = 0.27767$

142. SIRIUTI.

West bank of River Siriuti (知内川ノ西岸)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour. (Mean Local Time.)				δ			Observer	Recorder
July	23rd	21h	3.4m	5	30′	6″	Nakamura	Imamura
,,	,,	21	55.9	,,	31	9	,,	Nakamura
,,	24th	0	37.5	,,	30	54	,,	,,
,,	,,	1	31.6	,,	30	19	,,	,,
,,	,,	5	37.8	,,	29	17	,,	,,
,,	,,	7	7.3	,,	26	53	,,	,,
,,	,,	7	17.8	,,	26	35	,,	,,
,,	,,	8	16.2	,,	25	43	Imamura	,,
,,	,,	9	24.4	,,	27	53	,,	Imamura
,,	,,	10	34.0	,,	28	38	,,	,,
,,	,,	12	1.5	,,	31	35	,,	Nakamura
,,	,,	12	50.3	,,	33	40	Nakamura	Imamura
,,	,,	13	52.3	,,	35	38	,,	Nakamura
,,	,,	14	38.8	,,	34	48	,,	,,
,,	,,	15	32.3	,,	34	41	,,	,,
,,	,,	16	49.0	,,	32	2	,,	Imamura
,,	,,	17	41.0	,,	30	56	Imamura	Nakamura
,,	,,	18	56.7	,,	30	22	,,	Imamura
,,	,,	19	58.8	,,	30	28	Nakamura	Nakamura
Mean				5°	30′	28″		

δ = 5° 30′.47
Reduction to 1895.0 = 1.23
,, ,, sea level = 0.00
δ = 5° 31′.7

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	23rd	23h	6m	2	55	35.2	Nakamura	Nakamura
,,	24th	12	32	2	,,	36.8	Imamura	,,
,,	,,	15	8	2	,,	37.1	Nakamura	,,
,,	,,	19	34	2	,,	34.8	,,	,,
Mean					55	36.0		

θ = 55 36.0
Reduction to 1895.0 = −1.06
,, ,, sea level = 0.00
θ = 55° 34.9

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M*.)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	24th	11h	40m	0.27443	442.61	24°.9C	s 6.0307	24.9C	6°57′13″.1	15°51′ 2″.5	24°.8C	Imamura	Nakamura
,,	,,	17	17	0.27455	441.24	28.0	6.0401	28.5	6 56 8.1	15 52 1.9	27.4	Nakamura	Imamura
,,	,,	20	41	0.27463	442.79	23.3	6.0273	23.1	6 57 18.8	15 54 34.4	23.3	,,	,,
,,	25th	7	21	*0.27433	442.20	24.5	6.0215	24.5	(6 56 21.9	15 51 55.0	25.8)	Imamura	Nakamura
Mean				0.27457									

H = 0.27457
Reduction to 1895.0 = 223
,, ,, sea level = 000
H = 0.27459

143. TIRIBETU.

Military ground (屯田兵司令部所轄地)

DECLINATION (δ)

Observations of the South Party, 1891.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 29th 15h 45.9m	6 9′ 18″	Nakamura	Nakamura
,, ,, 16 20.7	,, 8 57	,,	,,
,, ,, 17 4.4	,, 6 40	,,	,,
,, ,, 18 18.4	,, 6 15	,,	,,
,, ,, 19 19.1	,, 6 10	,,	,,
,, ,, 20 25.7	,, 6 22	,,	,,
,, ,, 23 45.8	,, 6 29	,,	,,
,, 30th 5 53.2	,, 3 10	,,	,,
,, ,, 6 54.3	,, 1 12	,,	,,
,, ,, 7 57.6	,, 1 42	,,	,,
,, ,, 9 4.3	,, 5 2	,,	,,
,, ,, 10 12.7	,, 8 19	,,	,,
,, ,, 11 1.8	,, 11 11	,,	,,
,, ,, 12 11.2	,, 13 33	,,	,,
,, ,, 13 4.5	,, 13 32	,,	,,
,, ,, 14 10.0	,, 12 30	,,	,,
,, ,, 15 0.5	,, 10 52	,,	,,
,, ,, 15 50.9	,, 9 28	,,	,,
Mean	6° 7′ 6″		

δ = 6° 7′.10

Reduction to 1895.0 = 1.25

,, ,, sea level = 0.00

δ = 6 8′.4

DIP (θ)

Observations of the South Party, 1891.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 31th 7h 3m	2	56 31′.8	Nakamura	Nakamura
,, ,, 11 34	2	,, 32.0	,,	,,
,, ,, 15 28	2	,, 32.0	,,	,,
Mean		56 31′.9		

θ = 56 31′.9

Reduction to 1895.0 = −1.11

,, ,, sea level = 0.00

θ = 56 30′.8

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the South Party, 1891.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t	Observer	Recorder
July. 29h 17h 46m	*0.26798	441.00	28°.5C	s 6.1143	28.3C	(7 6′56″.9	16°14′16″.2	28°.4C)	Nakamura	Imamura
,, 30h 9 35	*0.26814	440.80	29.3	6.1141	29.3	(7 6 30.0	16 14 36.9	29.3)	,,	,,
,, ,, 13 43	0.26812	439.94	31.8	6.1196	31.5	7 4 7.5	16 10 1.2	32.1	,,	,,
,, ,, 16 32	0.26836	440.01	31.5	6.1188	32.3	7 4 17.5	16 10 33.2	30.8	,,	,,
,, ,, 15 45	0.26820	440.16	31.3	6.1212	32.8	7 4 40.6	16 11 5.6	29.9	,,	,,
Mean	0.26816									

H = 0.26816

Reduction to 1895.0 = 179

,, ,, sea level = 000

H = 0.26818

144. TOMAKOMAI.

Race ground (戸長役場ノ西競馬場内)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	31st	17h	27.6m	5	4′	57″	Nakamura	Nakamura
..	..	18	30.4	..	4	28	..	..
..	..	19	22.6	..	4	10	..	..
..	..	21	3.8	..	3	57	..	..
..	..	23	23.1	..	4	57	..	..
..	..	23	58.2	..	5	0	..	..
..	..	1	41.1	..	3	16	..	..
Aug.	1st	7	9.4	..	4	10	..	..
..	..	8	27.2	..	2	44	..	..
..	..	9	7.8	..	3	24	..	..
..	..	9	57.0	..	4	24	..	..
..	..	11	3.0	..	7	24	..	..
..	..	11	43.6	..	9	26	..	..
..	..	12	31.1	..	10	17	..	..
..	..	13	39.0	..	10	44	..	..
..	..	14	46.9	..	7	58	..	..
..	..	15	46.8	..	6	32	..	..
..	..	16	44.8	..	5	39	..	..
..	..	17	23.8	..	5	40	..	..
Mean				5	4′	58″		

$\delta = 5°\ 4'.97$
Reduction to 1895.0 = 1.19
" " sea level = 0.00
$\delta = 5°\ 6'.2$

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ	Observer	Recorder
Aug.	1st	9h	27m		56° 49.2	..	..
"	"	12	10	2	" 49.3	..	..
"	"	15	7	2	" 48.2	Nakamura	Nakamura
Mean					56° 48.9		

$\theta = 56°\ 48'.9$
Reduction to 1895.0 = −0.97
" " sea level = 0.00
$\theta = 56°\ 47'.9$

HORIZONTAL INTENSITY. (H)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib.n	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	31st	20h	35m	0.26952	442.71	23.2C	6.0851s	23.5C	7° 5′ 0″.6	16° 12′ 8″.8	23.0C	Nakamura	Nakamura
Aug.	1st	10	36	0.26889	442.44	23.3	6.0939	23.4	7 5 36.2	16 13 25.0	23.3	..	..
..	..	14	13	0.26930	441.64	24.6	6.0943	24.5	7 4 23.8	16 11 9.4	24.8	..	..
"	"	16	21	0.26931	442.23	23.7	6.0901	23.6	7 4 46.9	16 11 39.4	23.8	..	..
Mean				0.26926									

$H = 0.26926$
Reduction to 1895.0 = 10.0
" " sea level = 0.0
$H = 0.26927$

145. SARUPT.

Common school (小 學 校)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	4th	10h	52.5m	6°	1′	29″	Nakamura	Imamura
,,	,,	11	21.0	,,	2	24	,,	Nakamura
,,	,,	12	23.6	,,	4	16	,,	Imamura
,,	,,	13	24.1	,,	5	51	,,	Nakamura
,,	,,	14	28.9	,,	4	45	Imamura	,,
,,	,,	15	27.6	,,	4	0	,,	,,
,,	,,	16	56.8	,,	1	55	Nakamura	Imamura
,,	,,	17	58.1	,,	1	9	Imamura	Nakamura
,,	,,	18	59.8	,,	1	17	Nakamura	,,
,,	,,	20	0.6	,,	1	45	,,	,,
,,	,,	20	58.1	,,	1	31	,,	,,
,,	5th	0	28.4	5	58	54	Imamura	Imamura
,,	,,	4	52.6	,,	57	27	Nakamura	Nakamura
,,	,,	5	56.7	,,	55	23	,,	,,
,,	,,	6	50.8	,,	54	2	,,	,,
,,	,,	8	2.9	,,	53	44	,,	,,
,,	,,	9	17.4	,,	56	21	,,	,,
,,	,,	10	50.2	6	3	28	,,	Imamura
,,	,,	10	58.4	,,	2	44	,,	,,
Mean				6°	0′	0″		

δ = 6° 0′.00
Reduction to 1895.0 = 1.10
,, ,, sea level = 0.00

δ = 6° 1′.10

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time)				Needle No.	θ		Observer	Recorder
Aug.	4th	13h	57m	2	56°	25′.7	Nakamura	Nakamura
,,	,,	17	34	2	,,	25.9	Imamura	,,
,,	,,	20	35	2	,,	27.5	Nakamura	,,
,,	5th	8	31	2	,,	27.3	,,	,,
Mean					56°	26′.8		

θ = 56° 26′.8
Reduction to 1895.0 = −0.80
,, ,, sea level = 0.00

θ = 56° 26′.0

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	4th	12h	2m	0.27027	440.85	27.4C	s 6.0892	27.4C	7° 1′57″.5	16° 5′11″.3	27.4C	Nakamura	Imamura
,,	,,	16	17	*0.26974	439.75	30.3	6.1028	30.3	(7 1 25.6	16 4 53.8	27.3)	Imamura	Nakamura
,,	,,	18	28	0.26992	441.95	22.7	6.0853	22.9	7 3 50.0	16 9 47.5	22.6	Nakamura	{Imamura / Nakamura
,,	5th	10	15	0.26[illegible]50	440.37	28.7	6.0979	27.3	7 1 56.9	16 4 43.8	30.0	Imamura	,,
,,	,,	10	26	0.26980	439.89	28.7	6.0979	27.3	7 1 26.2	16 4 15.6	30.1	,,	,,
Mean				0.26985									

H = 0.26985
Reduction to 1895.0 = 058
,, ,, sea level = 000

H = 0.26986

146. OSYATINAI.

West corner of village ground (長知内村中央ノ空地ノ西隅)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	6th	18h	31.6m	5°	49′	27″	Nakamura	Imamura
,,	,,	19	14.9	,,	49	24	Imamura	Nakamura
,,	,,	20	38.5	,,	49	33	,,	,,
,,	7th	0	5.0	,,	49	50	,,	,,
,,	,,	5	31.2	,,	47	18	,,	Imamura
,,	,,	6	58.2	,,	45	0	Nakamura	Nakamura
,,	,,	7	59.9	,,	45	17	Imamura	Imamura
,,	,,	9	11.8	,,	47	22	Nakamura	Nakamura
,,	,,	10	31.8	,,	51	12	Imamura	Imamura
,,	,,	11	28.7	,,	52	22	,,	,,
,,	,,	12	33.5	,,	54	45	Nakamura	,,
,,	,,	13	26.7	,,	55	42	,,	Nakamura
,,	,,	14	29.2	,,	53	41	,,	,,
,,	,,	15	28.1	,,	52	54	Imamura	Imamura
Mean				5°	49′	56″		

$\delta = 5°\ 49'.83$
Reduction to 1895.0 = 1.08
,, ,, sea level = −0.01
$\delta = 5°\ 50'.9$

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	6th	20h	42m	2	56°	33′.3	Imamura	Nakamura
,,	7th	10	7	2	,,	33.6	,,	Imamura
,,	,,	13	57	2	,,	35.1	Nakamura	Nakamura
Mean					56°	34′.0		

$\theta = 56°\ 34'.0$
Reduction to 1895.0 = −0.81
,, ,, sea level = 0.01
$\theta = 56°\ 33'.2$

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	7th	8h	45m	0.26938	440.85	29.4C	6.0979s	28°.8C	7° 2′32″.5	16 5′40″.0	30°.1C	Nakamura	Imamura
,,	,,	12	10	0.26916	439.23	33.1	6.1135	33.1	7 1 27.5	16 3 8.1	33.0	Imamura	Nakamura
,,	,,	14	53	0.26933	439.55	31.8	6.1084	31.5	7 1 21.3	16 2 48.1	32.1	Nakamura	Imamura
,,	,,	15	1	0.26931	439.25	32.3	6.1084	31.5	7 0 47.5	16 1 33.1	33.1	,,	,,
Mean				0.26930									

H = 0.26930
Reduction to 1895.0 = 040
,, ,, sea level = 111
H = 0.26932

147. NOHUKA.

Pasture of Sekisinsya (赤心社牧場).

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	12th	13h	54.5m	6	11′	1″	Imamura	Nakamura
,,	,,	14	52.0	,,	10	56	Nakamura	,,
,,	,,	16	19.9	,,	10	41	Imamura	,,
,,	,,	17	57.5	,,	8	53	,,	,,
,,	,,	19	8.0	,,	7	52	Nakamura	Imamura
,,	,,	19	53.0	,,	8	9	Imamura	Nakamura
,,	,,	21	13.3	,,	8	12	Nakamura	,,
,,	,,	22	40.3	,,	8	20	,,	,,
,,	13th	5	6.3	,,	5	11	Imamura	Imamura
,,	,,	6	7.9	,,	4	26	Nakamura	Nakamura
,,	,,	7	11.5	,,	4	37	,,	,,
,,	,,	8	20.3	,,	6	9	,,	,,
,,	,,	9	26.0	,,	8	38	Imamura	Imamura
,,	,,	11	.0	,,	9	42	Nakamura	Nakamura
,,	,,	12	17.7	,,	10	9	,,	,,
,,	,,	14	9.3	,,	10	43	,,	Imamura
,,	,,	14	56.4	,,	10	36	Imamura	,,
Mean				6	8′	8″		

δ = 6 8′.13

Reduction to 1895.0 = 0.92

,, ,, sea level = 0.00

δ = 6 9′.1

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	12th	17h	24m	2	55	56′.5	Nakamura	Nakamura
,,	,,	20	35	2	,,	56.0	Imamura	,,
,,	13th	6	52	2	,,	57.2	Nakamura	,,
,,	,,	11	51	2	,,	57.4	Imamura	,,
Mean					55	56′.8		

θ = 55 56′.8

Reduction to 1895.0 = −0.51

,, ,, sea level = 0.00

θ = 55 56′.3

HORIZONTAL INTENSITY (*H*)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections		Temp. t_D	Observer	Recorder
									φ_1	φ_2			
Aug.	12th	15h	54m	0.27105	438.61	31°.9 C	s 6.0979	32°.5 C	6 58′22″.5	15 56′18″.1	31°.3 C	Imamura	Nakamura
,,	,,	18	39	0.27115	440.96	26.5	6.0791	26.8	7 0 8.8	15 59 54.4	26.2	Nakamura	Imamura
,,	,,	22	11	0.27096	441.48	24.4	6.0777	24.7	7 1 6.2	16 2 18.8	24.1	Imamura	Nakamura
,,	13th	10	2	0.27080	439.02	31.0	6.0948	30.4	6 58 34.4	15 56 26.3	31.6	Nakamura	Imamura
Mean				0.27099									

H = 0.27099

Reduction to 1895.0 = −023

,, ,, sea level = 000

H = 0.27099

148. URAKAWA.

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				θ			Observer	Recorder
Aug.	14th	17h	30.3m	6	5′	12″	Nakamura	Nakamura
,,	,,	18	22.1	,,	3	4	Imamura	Imamura
,,	,,	19	17.7	,,	4	22	,,	,,
,,	,,	20	30.9	,,	5	40	Nakamura	,,
,,	,,	23	5.1	,,	4	19	,,	,,
,,	,,	23	48.2	,,	4	10	Imamura	Nakamura
,,	15th	5	56.3	,,	0	34	Nakamura	,,
,,	,,	7	20.1	5	59	45	,,	,,
,,	,,	8	10.5	,,	59	19	Imamuaa	Imamura
,,	,,	9	48.3	6	2	2	,,	Nakamura
,,	,,	11	5.6	,,	6	41	Nakamura	Imamura
,,	,,	11	44.4	,,	8	11	,,	Nakamura
,,	,,	12	39.8	,,	9	5	Imamura	,,
,,	,,	13	38.6	,,	8	58	Nakamura	,,
,,	,,	15	7.2	,,	8	30	Imamura	Imamura
Mean				6°	4′	28″		

δ = 6° 4′.47
Reduction to 1895.0 = 0.89
,, ,, sea level = 0.00
δ = 6° 5′.4

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	14th	18h	22m	2	55	53′.7	Nakamura	Imamura
,,	,,	19	58	2	,,	51.6	Imamura	,,
,,	15th	10	43	2	,,	48.7	,,	Nakamura
,,	,,	13	39	2	,,	51.4	Nakamura	,,
Mean					55°	51′.4		

θ = 55° 51′.4
Reduction to 1895.0 = −0.50
,, ,, sea level = 0.00
θ = 55° 50′.9

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	15th	9h	13m	0.27181	440.68	26.2C	s 6.0718	25°.7C	6 58′45″.6	15 56′58″.1	26°.8C	Nakamura	Imamura
,,	,,	12	13	0.27171	439.84	27.9	6.0811	27.9	6 58 15.0	15 55 46.9	27.9	Imamura	Nakamura
,,	,,	15	51	0.27211	440.12	27.1	6.0749	27.7	6 58 18.1	15 56 12.5	26.6	,,	,,
,,	,,	18	1	0.27205	440.87	24.4	6.0701	24.9	6 59 11.2	15 58 20.0	23.9	Nakamura	,,
Mean				0.27192									

H = 0.27192
Reduction to 1895.0 = −025
,, ,, sea level = 000
H = 0.27192

149. SYOYA.

Field behind Syoya (庶野村後方ノ原野)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 19^{th} 15^h 40.5^m	5° 37′ 1″	Imamura	Imamura
„ „ 16 38.2	„ 35 38	„	„
„ „ 17 21.1	„ 35 30	„	„
„ „ 18 44.1	„ 35 11	„	„
„ „ 20 2.8	„ 35 56	„	„
„ „ 20 50.1	„ 35 36	„	„
„ „ 21 51.2	„ 35 13	„	„
„ „ 22 44.2	„ 35 10	„	„
„ 20^{th} 5 34.1	„ 31 14	„	„
„ „ 6 47.4	„ 31 30	Nakamura	Nakamura
„ „ 8 14.2	„ 30 48	„	„
„ „ 9 6.2	„ 31 18	Imamura	Imamura
„ „ 11 28.2	„ 39 36	Nakamura	Nakamura
„ „ 12 10.7	„ 39 36	Imamura	Imamura
„ „ 13 11.9	„ 30 25	„	„
Mean	5° 35′ 22″		

δ = 5° 35.′37

Reduction to 1895.0 = 0.81

„ „ sea level = 0.00

δ = 5° 36.′2

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 19^{th} 19^h 26^m	2	55° 37.′2	Imamura	Imamura
„ 20^{th} 12 10	2	„ 39.3	Nakamura	„
„ „ 15 6	2	„ 42.1	Imamura	Nakamura
Mean		55° 39.′5		

θ = 55° 39.′5

Reduction to 1895.0 = −0.40

„ „ sea level = 0.00

θ = 55° 39.′1

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 20^{th} 11^h 2^m	*0.27153	440.20	26.5C	6.0368 s	25.2C	(6° 58′ 38.″8	15° 56′ 15.″6	26.5C	Nakamura, Imamura	Imamura, Nakamura
„ 21^{st} 12 6	0.27116	438.84	28.5	6.0889	26.7	6 57 53.1	15 55 28.1	30.4	Nakamura	Imamura
„ „ 15 53	0.27114	439.65	28.5	6.0857	29.0	6 58 48.1	15 57 18.1	28.0	Imamura	Nakamura
„ „ 16 48	0.27142	439.55	28.6	6.0882	[illegible]	6 58 57.5	15 57 38.1	27.3	„, Nakamura	„
Mean	0.27139									

H = 0.27139

Reduction to 1895.0 = −051

„ „ sea level = 000

H = 0.27138

150. MOYORO.

Interior of Zinsya (神社境内)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time)				δ			Observer	Recorder
Aug.	24th	16h	52.1m	5	20′	25″	Nakamura	Imamura
,,	,,	18	12.7	,,	17	39	Imamura	Nakamura
,,	,,	18	26.8	,,	17	36	,,	Imamura
,,	,,	19	18.1	,,	16	21	Nakamura	Nakamura
,,	,,	22	12.5	,,	17	20	Imamura	,,
,,	,,	23	10.7	,,	17	31	Nakamura	Imamura
,,	,,	23	57.5	,,	16	27	Imamura	,,
,,	25th	6	7.1	,,	15	20	,,	,,
,,	,,	7	14.9	,,	14	44	Nakamura	Nakamura
,,	,,	7	40.9	,,	15	22	,,	,,
,,	,,	8	59.4	,,	16	56	,,	,,
,,	,,	12	22.4	,,	20	49	Imamura	,,
,,	,,	13	38.0	,,	21	22	Nakamura	Imamura
,,	,,	15	18.1	,,	20	47	Imamura	,,
,,	,,	16	27.4	,,	19	7	,,	Nakamura
,,	,,	17	29.4	,,	16	34	Nakamura	,,
,,	,,	18	29.5	,,	15	56	,,	Imamura
Mean				5	17′	43″		

δ = 5° 17′.77

Reduction to 1895.0 = 0.80

,, ,, sea level = 0.00

δ = 5° 18′.6

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	24th	19h	52m	2	55°	52′.4	Nakamura	Nakamura
,,	25th	9	42	–	,,	53.0	,,	,,
,,	,,	14	34	2	,,	55.9	Imamura	Imamura
Mean					55	53′.8		

θ = 55° 53′.8

Reduction to 1895.0 = −0.42

,, ,, sea level = 0.00

θ = 55° 53′.4

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	24th	17h	43m	0.27110	443.07	18°.4C	6.0643 s	18°.4C	7° 2′ 26″.3	16° 5′ 23″.1	18°.3C	Nakamura	Imamura
,,	25th	11	5	0.27116	442.55	19.0	6.0677	19.2	7 2 11.2	16 5 15.6	18.8	Imamura	Nakamura
,,	,,	15	59	0.27120	442.52	17.5	6.0635	17.7	7 1 54.4	16 4 25.0	17.3	Nakamura	Imamura
,,	,,	17	8	0.27102	442.66	17.6	6.0676	17.6	7 2 18.8	16 5 21.2	17.6	Imamura	Nakamura
Mean				0.27112									

H = 0.27112

Reduction to 1895.0 = −049

,, ,, sea level = 000

H = 0.27112

151. TYŪRUI.

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	δ			Observer	Recorder
Aug. 27th 20h 4.2m	5°	20′	1″	Imamura	Imamura
,, ,, 20 18.3	,,	20	10	,,	,,
,, ,, 23 48.5	,,	21	15	Nakamura	,,
,, 28th 5 10.4	,,	19	18	,,	Nakamura
,, ,, 5 30.8	,,	19	1	,,	,,
,, ,, 6 52.8	,,	17	5	Imamura	Imamura
,, ,, 7 17.2	,,	17	7	,,	,,
,, ,, 8 45.7	,,	19	21	Nakamura	Nakamura
,, ,, 10 6.5	,,	21	26	,,	,,
,, ,, 11 0.1	,,	23	38	Imamura	,,
,, ,, 12 13.0	,,	24	18	,,	Imamura
,, ,, 13 7.0	,,	24	38	,,	,,
,, ,, 13 58.7	,,	23	12	Nakamura	,,
,, ,, 15 0.3	,,	22	18	,,	,,
,, ,, 15 58.9	,,	20	37	Imamura	,,
,, ,, 16 50.9	,,	20	40	,,	,,
,, ,, 17 54.4	,,	20	29	Nakamura	Nakamura
Mean	5°	20′	52″		

$\delta = 5°\ 20'.87$

Reduction to 1895.0 = 0.80

,, ,, sea level = 0.00

$\delta = 5°\ 21'.7$

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ		Observer	Recorder
Aug. 27th 22h 29m	2	56	10′.7	Imamura	Nakamura
,, 28th 10 10	2	,,	16.4	Nakamura	Imamura
,, ,, 13 37	2	,,	13.5	Imamura	Nakamura
,, ,, 18 30	2	,,	12.0	Nakamura	Imamura
Mean		56°	13′.2		

$\theta = 56\ 13'.2$

Reduction to 1895.0 = −0.45

,, ,, sea level = 0.00

$\theta = 56\ 12'.7$

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 28th 9h 49m	0.26935	439.56	28°.8C	s 6.1056	27.6C	7° 1′14″.4	16° 2′46″.2	30.0C	Imamura	Nakamura
,, ,, 11 52	0.26970	438.62	30.4	6.1121	30.8	6 59 58.8	15 59 18.1	30.0	Nakamura	Imamura
,, ,, 14 44	0.26980	438.93	28.3	6.1093	28.9	7 0 36.2	16 1 20.6	27.7	Imamura	Nakamura
,, ,, 16 27	*0.26954	439.90	25.8	6.1037	25.8	(7 2 4.4	16 4 36.3	30.2)	Nakamura	Imamura
Mean	0.26960									

$H = 0.26960$

Reduction to 1895.0 = −54

,, ,, sea level = 000

$H = 0.26959$

152. MEMURO.

Obihiro road, West of River Memuro (芽室河ノ西方帶廣街道)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	30th	15h	18.6m	5	18′	51″	Nakamura	Nakamura
"	"	16	18.7	"	18	24	"	"
"	"	17	13.7	"	17	45	"	Imamura
"	"	19	0.2	"	15	55	"	"
"	"	21	4.1	"	17	34	Imamura	Nakamura
"	"	21	48.0	"	17	36	"	Imamura
"	"	23	13.8	"	17	41	"	Nakamura
"	31st	2	57.7	"	16	2	Nakamura	"
"	"	5	54.1	"	14	54	Imamura	Imamura
"	"	7	4.3	"	13	31	"	"
"	"	8	1.4	"	13	52	Nakamura	Nakamura
"	"	10	16.4	"	17	14	Imamura	Imamura
"	"	11	28.8	"	50	50	"	Nakamura
"	"	12	16.5	"	51	57	Nakamura	"
"	"	13	3.3	"	52	8	"	"
"	"	13	33.2	"	51	30	Imamura	Imamura
"	"	14	37.3	"	50	27	Nakamura	Nakamura
Mean				5	17′	15″		

δ = 5 17.′25

Reduction to 1895.0 = 0.85

" " sea level = −0.01

δ = 5 18.′1

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	30th	22h	48m	2	56	34.′1	Nakamura	Nakamura
"	31st	6	40	2	"	35.3	Imamura	Imamura
"	"	9	11	2	"	35.4	Nakamura	Nakamura
"	"	12	45	2	"	32.1	Imamura	"
Mean					56	34.′2		

θ = 56 34.′2

Reduction to 1895.0 = −0.57

" " sea level = 0.01

θ = 56 33.′6

HORIZONTAL INTENSITY (H)

(*Value deduced from Vibration only by assuming Value of M.)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Arg. 30th 20h 8m	0.26811	441.48	19.7C	s 6.1160	20.0C	7 6′ 0.″0	16 14′ 9.″4	19.5C	Nakamura	Imamura
" 31st 7 42	0.26802	442.70	19.1	6.1027	19.4	7 7 6.9	16 16 25.6	18.8	Imamura	Nakamura
" " 9 41	*0.26781	440.50	23.8	6.1193	23.8	(7 10 3.1)	16 22 32.5	24.1)	Nakamura	Imamura
" " 14 8	*0.26836	440.10	24.8	6.1151	24.8	(7 4 17.5)	16 11 22.5	24.1)	Imamura	Nakamura
Mean	0.26808									

H = 0.26808

Reduction to 1895.0 = −027

" " sea level = 115

H = 0.26809

153. OTASOI.

Penke Otasoi

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	3rd	14h	13.2m	6°	8′	31″	Nakamura	Nakamura
,,	,,	14	39.6	,,	8	20	Imamura	Imamura
,,	,,	15	53.8	,,	6	43	,,	,,
,,	,,	16	55.0	,,	5	36	,,	,,
,,	,,	17	48.5	,,	4	41	Nakamura	Nakamura
,,	,,	19	11.5	,,	5	25	,,	,,
,,	,,	20	30.4	,,	4	36	Imamura	,,
,,	,,	22	0.7	,,	4	26	,,	Imamura
,,	,,	23	25.9	,,	4	27	,,	,,
,,	4th	2	37.4	,,	3	43	Nakamura	Nakamura
,,	,,	5	53.9	,,	1	13	Imamura	Imamura
,,	,,	6	59.7	,,	0	15	Nakamura	Nakamura
,,	,,	7	45.5	,,	0	22	Imamura	Imamura
,,	,,	9	41.1	,,	3	15	Nakamura	Nakamura
,,	,,	10	48.9	,,	5	52	Imamura	Imamura
,,	,,	11	36.9	,,	7	12	,,	,,
,,	,,	12	42.3	,,	8	14	Nakamura	Nakamura
Mean				6°	4′	30″		

$\delta = 6°\ 4'.50$

Reduction to 1895.0 = 0.86

,, ,, sea level = −0.03

$\delta = 6°\ 5'.3$

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	3rd	16h	53m	2	56°	39′.8	Nakamura	Imamura
,,	,,	21	16	2	,,	42.1	Imamura	Nakamura
,,	4th	6	38	2	,,	41.7	,,	,,
Mean					56°	41′.2		

$\theta = 56°\ 41'.2$

Reduction to 1895.0 = −0.59

,, ,, sea level = 0.04

$\theta = 56°\ 40'.6$

HORIZONTAL INTENSITY (H)

(**Value deduced from Vibration only by assuming Value of M.*)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections. φ_1	Mean Deflections. φ_2	Temp. t_D	Observer	Recorder
Sept.	3rd	18h	43m	0.26772	441.62	19°.7C	s 6.1135	20°.0C	7° 6′35″.6	16°51′17″.5	19°.4C	Imamura	Nakamura
,,	,,	22	55	0.26785	442.83	18.1	6.1034	18.4	7 7 20.0	16 16 35.6	17.8	Nakamura	Imamura
,,	4th	8	26	*0.26741	442.60	17.6	6.1091	17.6	—	—	—	Imamura	Nakamura
,,	,,	11	16	0.26753	441.24	22.5	6.1172	22.3	7 6 16.9	16 14 33.8	22.6	Nakamura	Imamura
,,	,,	12	25	0.26765	440.54	24.8	6.1211	24.8	7 5 20.6	16 12 18.8	24.9	Imamura	Nakamura
Mean				0.26763									

$H = 0.26763$

Reduction to 1895.0 = −013

,, ,, sea level = 392

$H = 0.26767$

154. SYORUSAM.

West bank of River Tokati (十勝川ノ西岸ナル畑中)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	7th	19h	0.5m	5°	26′	11″	Nakamura	Imamura
,,	,,	20	28.2	,,	25	52	Imamura	Nakamura
,,	,,	22	8.1	,,	25	13	Nakamura	,,
,,	8th	1	34.3	,,	24	11	Imamura	Imamura
,,	,,	3	48.0	,,	24	51	Nakamura	Nakamura
,,	,,	1	52.0	,,	25	1	,,	,,
,,	,,	6	1.4	,,	24	11	,,	,,
,,	,,	6	4.22	,,	23	33	,,	,,
,,	,,	7	46.6	,,	22	49	,,	,,
,,	,,	8	52.2	,,	23	57	,,	,,
,,	,,	9	51.2	,,	26	23	Imamura	Imamura
,,	,,	11	18.3	,,	30	34	,,	,,
,,	,,	12	13.3	,,	31	4	Nakamura	,,
,,	,,	13	22.3	,,	30	42	,,	Nakamura
,,	,,	14	36.8	,,	28	49	Imamura	Imamura
,,	,,	15	47.4	,,	25	53	,,	,,
,,	,,	16	30.1	,,	25	4	,,	,,
,,	,,	18	31.5	,,	25	36	,,	,,
Mean				5°	26′	4″		

δ = 5° 26′.07
Reduction to 1895.0 = 0.78
,, ,, sea level = −0.01

δ = 5° 26′.8

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	8th	8h	8m	2	56°	27′.0	Nakamura	Nakamura
,,	,,	10	55	2	,,	29.0	Imamura	Imamura
,,	,,	15	7	2	,,	27.7	Nakamura	Nakamura
Mean					56	27.9		

θ = 56° 27′.9
Reduction to 1895.0 = −0.50
,, ,, sea level = 0.01

θ = 56° 27′.4

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	7th	21h	40m	0.26751	442.00	19.1C	6.1129 s	19.3C	7° 7′ 27″.5	16° 17′ 38″.1	18.9C	Imamura	Nakamura
,,	8th	9	29	0.26703	441.53	20.4	6.1213	20.4	7 7 20.0	16 13 45.0	20.3	Nakamura	Imamura
,,	,,	13	3	0.26758	438.64	29.7	6.1363	30.1	7 3 32.5	16 7 56.9	29.3	Imamura	Nakamura
,,	,,	17	14	*0.26737	440.00	23.5	6.1239	23.5	(7 5 6.9	16 12 47.5	21.0)	,,	,,
Mean				0.26737									

H = 0.26737
Reduction to 1895.0 = −039
,, ,, sea level = 072

H = 0.26737

155. ASYORO.

(足 寄 村)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	11th	19h	54.4m	5	41′	42″	Nakamura	Nakamura
,,	,,	21	0.8	,,	41	57	Imamura	,,
,,	,,	23	5.2	,,	41	52	,,	,,
,,	12th	0	7.3	,,	41	2	Nakamura	Imamura
,,	,,	2	7.6	,,	39	41	,,	Nakamura
,,	,,	5	32.6	,,	38	12	,,	,,
,,	,,	7	3.2	,,	38	44	,,	,,
,,	,,	7	55.3	,,	39	29	,,	,,
,,	,,	10	5.1	,,	41	19	Imamura	Imamura
,,	,,	11	10.7	,,	44	7	,,	,,
,,	,,	12	27.8	,,	45	8	,,	,,
,,	,,	14	19.1	,,	44	7	Nakamura	Nakamura
,,	,,	15	14.5	,,	42	29	,,	,,
,,	,,	16	22.8	,,	41	54	Imamura	Imamura
,,	,,	17	17.3	,,	41	14	,,	Nakamura
,,	,,	18	19.3	,,	41	27	Nakamura	,,
Mean				5	41′	16″		

δ = 5 41′.27
Reduction to 1895.0 = 0.72
,, ,, sea level = −0.02
δ = 5 42′.0

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	12th	8h	39m	2	56	42′.3	Nakamura	Nakamura
,,	,,	11	55	2	,,	41.8	Imamura	Imamura
,,	,,	18	52	2	,,	42.5	Nakamura	Nakamura
,,	13th	12	26	2	,,	44.2	Imamura	Imamura
Mean					56	42′.7		

θ = 56 42′.7
Reduction to 1895.0 = −0.46
,, ,, sea level = 0.03
θ = 56 42′.3

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 11th 22h 4m	0.26634	441.36	21.3C	6.1308s	21.5C	7 8′15″.0	16 18′50″.0	21.2C	Nakamura	Imamura
,, 12th 13 54	0.26639	441.45	20.7	6.1293	20.8	7 8 21.9	16 19 18.8	20.6	Imamura	Nakamura
,, ,, 16 49	0.26626	441.82	18.8	6.1280	18.8	7 9 5.0	16 21 11.3	18.8	Nakamura	Imamura
,, 13th 11h 33	0.26606	441.58	19.9	6.1333	20.4	7 9 7.5	16 20 55.0	19.4	Imamura	Nakamura
Mean	0.26626									

H = 0.26626
Reduction to 1895.0 = −076
,, ,, sea level = 290
H = 0.26628

156. OTU.

Common School (小學校構内)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	18th	12h	6.6m	5°	1′	57″	Nakamura	Nakamura
,,	,,	12	42.9	,,	2	4	Imamura	Imamura
,,	,,	13	59.6	,,	1	52	Nakamura	Nakamura
,,	,,	14	52.6	,,	0	56	,,	,,
,,	,,	16	3.6	4	59	7	Imamura	Imamura
,,	,,	17	5.7	,,	58	51	Nakamura	Nakamura
,,	,,	17	58.3	,,	58	2	Imamura	Imamura
,,	,,	19	25.2	,,	58	51	,,	Nakamura
,,	,,	21	10.5	,,	57	56	,,	Imamura
,,	,,	22	19.2	,,	58	5	,,	Nakamura
,,	,,	23	51.8	,,	57	23	Nakamura	Imamura
,,	19th	2	9.6	,,	56	24	,,	Nakamura
,,	,,	5	52.4	,,	57	2	,,	,,
,,	,,	6	5.8	,,	57	9	,,	,,
,,	,,	6	58.7	,,	57	16	,,	,,
,,	,,	8	4.4	,,	56	51	Imamura	Imamura
,,	,,	8	34.7	,,	56	23	,,	,,
,,	,,	9	56.0	,,	58	2	,,	,,
,,	,,	11	16.8	5	1	22	,,	,,
,,	,,	12	11.3	,,	2	35	Nakamura	,,
Mean				4	58′	18″		

δ = 4° 58′.30
Reduction to 1895.0 = 0.67
,, ,, sea level = 0.00
δ = 4° 59′.0

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	18th	11h	53m	2	56	14′.8	Imamura	Imamura
,,	,,	17	31	2	,,	17.9	Nakamura	Nakamura
,,	,,	21	55	2	,,	19.1	Imamura	Imamura
,,	19th	6	33	—	,,	16.5	Nakamura	Nakamura
Mean					56	17′.1		

θ = 56° 17′.1
Reduction to 1895.0 = −0.37
,, ,, sea level = 0.00
θ = 56° 16′.7

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	18th	13h	39m	0.27023	441.23	20°.2C	6.0877s	20°.6C	7° 2′ 2″.5	16° 4′ 22″.5	19°.9C	Imamura	Nakamura
,,	,,	18	49	0.27049	442.15	16.7	6.0767	16.5	7 2 33.1	16 5 46.3	16.9	Nakamura	Imamura
,,	,,	23	28	0.27068	441.86	13.9	6.0780	17.2	7 2 17.5	16 5 21.2	16.5	Imamura	Nakamura
,,	19th	9	27	0.27040	440.99	20.6	6.0851	20.0	7 1 20.6	16 2 56.3	21.2	Nakamura	Imamura
Mean				0.27045									

H = 0.27045
Reduction to 1895.0 = −052
,, ,, sea level = 000
H = 0.27044

157. SIRANUKA.

Village Coffiice. (白糠村戸長役場)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	21st	12h	19.0m	5	8′	19″	Nakamura	Nakamura
,,	,,	13	14.8	,,	9	16	Imamura	Imamura
,,	,,	14	18.3	,,	9	15	Nakamura	,,
,,	,,	15	18.4	,,	7	59	Imamura	,,
,,	,,	16	28.5	,,	6	47	,,	,,
,,	,,	17	30.7	,,	3	55	Nakamura	Nakamura
,,	,,	17	39.4	,,	4	4	,,	,,
,,	,,	18	30.2	,,	3	23	,,	,,
,,	,,	19	28.9	,,	1	41	Imamura	Imamura
,,	,,	21	3.4	,,	3	6	,,	,,
,,	,,	21	36.1	,,	3	51	Nakamura	Nakamura
,,	22nd	2	35.0	,,	2	49	Imamura	Imamura
,,	,,	6	40.2	,,	1	18	,,	,,
,,	,,	7	2.9	,,	1	41	,,	,,
,,	,,	8	39.3	,,	1	34	Nakamura	Nakamura
,,	,,	9	44.6	,,	2	25	Imamura	Imamura
,,	,,	10	43.3	,,	4	29	Nakamura	Nakamura
,,	,,	11	45.4	,,	6	31	Imamura	Imamura
Mean				5	4′	4″		

$\delta = 5°\ 4'.07$

Reduction to 1895.0 = 0′.61

,, ,, sea level = 0′.00

$\delta = 5°\ 4'.7$

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	21st	14h	56m	2	56°	36′.9	Nakamura	Nakamura
,,	,,	18	10	2	,,	39.6	Imamura	,,
,,	,,	20	40	2	,,	42.6	Nakamura	,,
,,	22nd	10	21	2	,,	41.9	Imamura	,,
Mean					56°	40′.3		

$\theta = 56°\ 40'.3$

Reduction to 1895.0 = −0′.31

,, ,, sea level = 0′.00

$\theta = 56°\ 40'.0$

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	21st	13h	56m	0.26661	439.84	23°.5 C	s 6.1420	25°.2 C	7° 6′ 53″.1	16° 15′ 45″.6	21°.7 C	Nakamura	Imamura
,,	,,	17	10	0.26670	442.48	15.7	6.1185	15.9	7 8 53.2	16 20 28.8	15.6	Imamura	Nakamuia
,,	,,	22	11	0.26654	444.04	12.5	6.1089	12.6	7 10 8.8	16 22 20.0	12.4	Nakamura	Imamura
,,	22nd	8	23	0.26702	442.97	15.0	6.1112	16.2	7 8 57.5	16 20 41.9	15.9	Imamura	Nakamura
,,	,,	,,	,,	0.26670	441.02	21.3	6.1271	20.7	7 7 8.8	16 16 21.9	21.9	Nakamura	Imamura
Mean				0.26671									

$H = 0.26671$

Reduction to 1895.0 = −.095

,, ,, sea level = .00

$H = 0.26670$

158. SIBETYA.

Sibetya Secondary Meteorological Observatory

(標茶二等測候所構內)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 24th 13h 4.9m	5° 45′ 39″	Imamura	Imamura
,, ,, 14 12.9	,, 44 56	,,	,,
,, ,, 15 16.0	,, 44 7	,,	,,
,, ,, 16 26.6	,, 42 44	,,	,,
,, ,, 17 23.9	,, 42 10	Nakamura	Nakamura
,, ,, 19 8.5	,, 41 18	,,	,,
,, ,, 21 41.2	,, 42 5	,,	,,
,, ,, 22 42.5	,, 41 55	Imamura	Imamura
,, 25th 0 4.4	,, 41 15	Nakamura	Nakamura
,, ,, 6 17.2	,, 41 3	Imamura	Imamura
,, ,, 6 54.8	,, 40 33	,,	,,
,, ,, 8 1.3	,, 40 33	Nakamura	Nakamura
,, ,, 9 16.9	,, 41 45	Imamura	Imamura
,, ,, 10 13.9	,, 42 37	,,	,,
,, ,, 11 0.6	,, 43 25	,,	,,
,, ,, 12 31.6	,, 43 53	Nakamura	Nakamura
,, ,, 13 58.9	,, 43 7	,,	,,
,, ,, 15 35.6	,, 42 26	Imamura	Imamura
,, ,, 16 28.1	,, 42 3	,,	,,
Mean	5° 42′ 4″		

δ = 5° 42′.07
Reduction to 1895.0 = 0.55
,, ,, sea level = −0.01
δ = 5° 42′.6

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 24th 16h 26m	2	56° 38′.4	Nakamura	Nakamura
,, ,, 20 49	2	,, 42.2	Imamura	Imamura
,, 25th 7 40	2	,, 43.4	,,	,,
,, ,, 10 42	2	,, 37.9	Nakamura	Nakamura
,, ,, 16 8	2	,, 36.3	Imamura	Imamura
Mean		56° 39′.1		

θ = 56° 39′.1
Reduction to 1895.0 = −0.27
,, ,, sea level = 0.01
θ = 56° 38′.8

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 24th 14h 51m	0.26498	440.17	21°.7 C	s 6.1551	22.0 C	7° 9′ 39″.4	16° 22′ 38″.1	21°.4 C	Nakamura	Imamura
,, ,, 23 43	0.26485	443.77	11.2	6.1304	11.3	7 13 29.4	16 31 26.2	11.1	Imamura	Nakamura
,, 25th 9 50	0.26477	440.91	20.6	6.1512	20.5	7 10 24.4	16 24 5.0	20.7	Nakamura	Imamura
,, ,, 15 0	0.26475	439.51	25.0	6.1630	25.3	7 9 0.0	16 20 31.9	24.7	Imamura	Nakamura
Mean	0.26484									

H = 0.26484
Reduction to 1895.0 = −129
,, ,, sea level = 072
H = 0.26483

159. ATUSANUPURI.

Yard of Yasuda Company. (安田硫黄山事務處前庭)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	26th	18h	16.4m	5°	16′	59″	Imamura	Nakamura
,,	,,	19	6.8	,,	17	31	,,	Imamura
,,	,,	20	32.5	,,	17	39	Nakamura	,,
,,	,,	21	41.6	,,	17	32	,,	Nakamura
,,	27th	6	7.6	,,	15	6	,,	Imamura
,,	,,	7	19.1	,,	15	20	Imamura	Nakamura
,,	,,	8	30.5	,,	15	16	,,	,,
,,	,,	9	42.8	,,	15	58	Nakamura	,,
,,	,,	10	55.3	,,	16	50	,,	,,
,,	,,	12	2.9	,,	17	44	Imamura	Imamura
,,	,,	13	8.5	,,	17	42	Nakamura	Nakamura
,,	,,	14	26.8	,,	17	35	Imamura	Imamura
,,	,,	15	51.0	,,	17	2	,,	,,
,,	,,	16	35.7	,,	16	44	,,	Nakamura
,,	,,	17	47.4	,,	16	35	Nakamura	,,
Mean				5°	16′	35″		

$\delta = 5°\ 16.'58$
Reduction to 1895.0 $=$ 0.59
,, ,, sea level $=$ -0.06
$\delta = 5°\ 17.'1$

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time)				Needle No.	θ		Observer	Recorder
Sept.	26th	20h	5m	2	56°	47.′4	Imamura	Nakamura
,,	27th	7	51	2	,,	48.8	Nakamura	Imamura
,,	,,	11	11	2	,,	46.6	Imamura	Nakamura
,,	,,	17	32	2	,,	47.8	Nakamura	,,
Mean					56°	47.′7		

$\theta = 56°\ 47.'7$
Reduction to 1895.0 $=$ -0.34
,, ,, sea level $=$ 0.08
$\theta = 56°\ 47.'4$

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	26th	21h	31m	0.26576	441.48	19.0C	6.1365s	19.3C	7° 9′30.″6	16° 22′ 0.″0	18.7C	Imamura	Nakamura
,,	27th	6	40	0.26557	442.25	16.9	6.1323	16.8	7 10 16.9	16 23 24.4	17.0	Nakamura	Imamura
,,	,,	6	51	0.26535	442.02	17.1	6.1323	16.8	7 10 1.9	16 23 10.6	17.5	,,	,,
,,	,,	10	18	0.26545	439.70	24.1	6.1519	24.0	7 7 59.4	16 18 23.1	24.2	Imamura	Nakamura
,,	,,	10	27	0.26546	439.73	24.0	6.1519	24.0	7 8 1.9	16 18 26.9	24.0	,,	,,
,,	,,	15	23	0.26561	440.93	19.9	6.1437	20.8	7 9 23.8	16 21 38.1	19.0	Nakamura	Imamura
,,	,,	16	59	0.26571	442.19	16.5	6.1319	16.8	7 10 18.8	16 23 48.1	16.2	,,	,,
Mean				0.26560									

$H = 0.26560$
Reduction to 1895.0 $=$ -105
,, ,, sea level $=$ 667
$H = 0.26566$

160. SINRYŪ.

Sinryū School (眞 龍 學 校)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 30th 12h 14.8m	5° 36′ 51″	Imamura	Nakamura
„ „ 12 58.6	„ 37 42	„	„
„ „ 14 0.5	„ 37 24	Nakamura	„
„ „ 15 28.0	„ 35 10	Imamura	Imamura
„ „ 16 42.6	„ 34 9	„	„
„ „ 17 23.8	„ 33 55	„	„
„ „ 18 15.3	„ 34 53	Nakamura	Nakamura
„ „ 19 25.1	„ 31 30	Imamura	Imamura
„ „ 20 44.8	„ 35 14	„	„
„ „ 22 15.9	„ 33 57	„	„
Oct. 1st 4 57.8	„ 33 27	„	„
„ „ 6 30.2	„ 32 26	„	„
„ „ 7 46.4	„ 31 5	„	„
„ „ 8 15.2	„ 30 58	Nakamura	Nakamura
„ „ 9 18.9	„ 31 31	Imamura	Imamura
„ „ 10 5.1	„ 33 20	Nakamura	Nakamura
„ „ 11 54.4	„ 37 14	„	„
Mean	5° 34′ 6″		

$\delta = 5° \quad 34'.10$

Reduction to 1895.0 = 0.47

„ „ sea level = 0.00

$\delta = 5° \quad 34'.6$

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 30th 16h 17m	2	57 15′.8	Nakamura	Nakamura
„ „ 21 41	2	„ 20.1	Imamura	Imamura
Oct. 1st 9 47	2	„ 20.2	„	„
Mean		57° 18′.7		

$\theta = 57° \quad 18'.7$

Reduction to 1895.0 = −1.53

„ „ sea level = 0.00

$\theta = 57° \quad 17'.2$

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 30th 15h 0m	0.26656	439.29	21°.9C	s 6.1457	26°.4C	7° 6′30″.6	16° 15′10″.6	23.4C	Nakamura	Imamura
„ „ 17 54	0.26568	441.34	16.7	6.1375	16.8	7 9 24.4	16 21 36.9	16.7	Imamura	Nakamura
Oct. 1st 7 25	0.26592	443.23	11.9	6.1203	11.4	7 11 1.3	16 25 42.5	12.3	Nakamura	Imamura
„ „ 11 35	0.26579	441.79	17.0	6.1325	16.8	7 9 35.6	16 22 0.6	17.2	Imamura	Nakamura
„ „ 12 32	0.26602	441.36	17.7	6.1310	17.9	7 9 11.3	16 21 34.3	17.5	Nakamura	Imamura
Mean	0.26599									

$H = 0.26599$

Reduction to 1895.0 = −145

„ „ sea level = 000

$H = 0.26598$

161. NEMURO.

Old Site of Kentyō (根室縣廳跡)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	6th	14h	58.5m	4°	8′	46″	Imamura	Nakamura
,,	,,	15	31.9	,,	7	50	,,	Imamura
,,	,,	16	53.8	,,	5	48	Nakamura	,,
,,	,,	18	19.9	,,	5	25	,,	,,
,,	,,	20	34.1	,,	4	56	,,	,,
,,	,,	21	54.2	,,	5	16	,,	Nakamura
,,	,,	23	4.4	,,	5	26	,,	,,
,,	7th	3	10.9	,,	4	22	,,	,,
,,	,,	4	49.8	,,	2	17	,,	,,
,,	,,	6	32.2	,,	2	31	,,	,,
,,	,,	7	24.5	,,	2	58	,,	,,
,,	,,	8	18.0	,,	1	45	Imamura	Imamura
,,	,,	9	22.0	,,	0	7	Nakamura	Nakamura
,,	,,	10	21.0	,,	1	45	Imamura	Imamura
,,	,,	11	10.6	,,	3	55	,,	,,
,,	,,	11	46.1	,,	4	48	,,	,,
,,	,,	12	51.8	,,	7	1	Nakamura	,,
,,	,,	13	46.9	,,	8	20	Imamura	Nakamura
,,	,,	14	56.3	,,	7	20	Nakamura	Imamura
Mean				4°	4′	29″		

δ = 4° 4′.48
Reduction to 1895.0 = 0.42
,, ,, sea level = 0.00
δ = 4° 4′.9

DIP (θ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Oct.	6th	16h	22m	2	57°	31′.3	Imamura	Imamura
,,	,,	19	37	2	,,	30.0	,,	,,
,,	,,	22	27	—	,,	28.9	Nakamura	Nakamura
,,	7th	7	57	2	,,	29.3	,,	,,
Mean					57°	29′.9		

θ = 57° 29′.9
Reduction to 1895.0 = −0.12
,, ,, sea level = 0.00
θ = 57° 29′.8

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Oct.	6th	18h	1m	0.25604	443.99	10°.2C	6.2325s	9°.9C	7°28′30″.0	17° 6′29″.4	10°.5C	Imamura	Nakamura
,,	,,	21	27	0.25616	443.71	10.9	6.2336	10.9	7 28 19.4	17 6 5.6	11.0	Nakamura	Imamura
,,	7th	9	2	0.25587	442.11	15.1	6.2468	14.3	7 26 35.0	17 2 1.9	16.0	Imamura	Nakamura
,,	,,	10	53	0.25544	441.19	18.4	6.2611	18.5	7 26 30.0	17 1 31.9	18.3	Nakamura	Imamura
,,	,,	12	8	0.25565	440.15	20.5	6.2663	20.7	7 25 12.5	16 58 46.3	20.4	,,	,,
,,	,,	14	27	0.25602	439.82	21.8	6.2656	22.6	7 24 22.5	16 56 46.3	21.0	Imamura	Nakamura
Mean				0.25586									

H = 0.25586
Reduction to 1895.0 = −158
,, ,, sea level = 000
H = 0.25584

162. SENDAI.

Magnetic observatory. (第二高等學校磁力計室内ノ西北隅)

DECLINATION (δ)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
June	29th	9h	23.7m	5°	7′	17″	Nakamura	Imamura
"	"	9	55.9	"	8	11	Imamura'	Nakamura
"	"	11	17.1	"	9	4	Nakamura	Imamura
"	"	12	24.0	"	10	50	"	"
"	"	13	38.6	"	11	12	"	"
"	"	14	53.2	"	9	33	Imamura	Nakamura
"	"	15	47.4	"	8	26	Nakamura	Imamura
"	"	16	46.1	"	7	6	Imamura	Nakamura
"	"	17	49.2	"	6	33	Nakamura	Imamura
"	"	19	13.7	"	6	17	"	"
"	"	20	11.5	"	7	15	Imamura	Nakamura
"	"	21	25.4	"	7	54	Nakamura	Imamura
"	30th	0	34.6	"	6	10	"	"
"	"	5	23.8	"	3	49	"	Nakamura
"	"	6	28.2	"	1	35	"	"
"	"	7	38.7	"	1	34	Imamura	Imamura
"		8	29.8	"	3	39	"	Nakamura
"	"	9	20.2	"	5	42	"	"
"	"	10	20.3	"	7	34	Nakamura	Imamura
"	"	11	28.8	"	8	37	Imamura	Nakamura
"	"	12	39.4	"	9	42	Nakamura'	Imamura
"	"	13	38.1	"	10	31	Imamura	Nakamura
"	"	15	11.3	"	9	59	Nakamura	"
"	"	16	26.7	"	7	58	"	"
"	"	17	10.8	"	7	2	"	Imamura
"	"	18	34.5	"	5	26	"	"
Mean				5°	6′	40″		

	δ = 5	6'.67
Reduction to	1895.0 =	0.74
" "	sea level =	0.00
	δ = 5°	7'.4

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	25th	10h	18.7m	5	2′	23″	Nakamura	Imamura
"	"	11	8.4	"	3	30	"	Nakamura
"	"	12	13.0	"	5	7	Imamura	Imamura
"	"	13	33.9	"	6	6	"	"
"	"	14	54.9	"	5	43	Nakamura	Nakamura
"	"	15	32.6	"	5	4	"	Imamura
"	"	17	10.0	"	4	47	Imamura	Nakamura
"	"	17	53.9	"	4	59	"	Imamura
"	"	20	43.9	"	5	25	"	"
"	"	21	37.4	"	4	47	"	"
"	26th	2	14.7	"	4	3	Nakamura	Nakamura
"	"	5	31.2	"	6	54	Imamura	Imamura
"	"	5	52.4	"	4	11	Nakamura	Nakamura
"	"	6	48.4	"	4	10	"	"
"	"	7	11.1	"	3	35	"	"
"	"	7	55.2	"	2	12	"	"
				To be Continued				

Continued

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	26^{th}	8^h	4.3^m	5	2′	17″	Nakamura	Nakamura
,,	,,	8	54.8	,,	3	19	Imamura	Imamura
,,	,,	10	8.4	,,	3	59	,,	,,
,,	,,	11	28.6	,,	7	12	Nakamura	Nakamura
,,	,,	12	23.0	,,	7	45	Imamura	Imamura
,,	,,	14	7.1	,,	8	6	,,	,,
,,	,,	15	18.1	,,	7	28	Nakamura	Nakamura
,,	,,	16	9.3	,,	6	4	Imamura	Imamura
,,	,,	17	16.0	,,	6	32	Nakamura	Nakamura
,,	,,	18	21.9	,,	5	57	,,	,,
,,	,,	19	28.6	,,	5	35	Imamura	Imamura
,,	,,	20	34.0	,,	4	57	Nakamura	Nakamura
,,	,,	21	37.5	,,	5	14	Imamura	Imamura
,,	,,	23	2.8	,,	4	55	,,	,,
,,	27^{th}	0	12.0	,,	4	59	Nakamura	Nakamura
,,	,,	5	18.8	,,	5	0	,,	,,
,,	,,	6	25.0	,,	3	55	,,	,,
,,	,,	7	26.0	,,	3	5	,,	,,
,,	,,	8	52.6	,,	2	26	Imamura	Imamura- Nakamura
,,	,,	9	45.6	,,	2	29	,,	Imamura
,,	,,	10	43.1	,,	4	9	,,	,,
,,	,,	11	18.6	,,	5	33	,,	,,
,,	,,	12	24.2	,,	6	30	,,	,,
,,	,,	13	31.4	,,	6	7	Nakamura	Nakamura
,,	,,	14	17.4	,,	5	33	,,	,,
,,	,,	15	8.0	,,	5	7	Imamura	Imamura
,,	,,	16	0.9	,,	5	8	,,	,,
,,	,,	17	7.2	,,	5	4	,,	,,
,,	,,	18	15.0	,,	4	48	Nakamura	Nakamura
,,	,,	19	33.8	,,	5	5	Imamura	Imamura
,,	,,	20	46.8	,,	4	38	Nakamura	Nakamura
,,	,,	22	51.8	,,	4	5	Imamura	Imamura
,,	28^{th}	6	9.7	,,	5	59	,,	,,
Mean				5	5′	4″		

$\delta = 5 \quad 5'.07$

Reduction to 1895.0 = 0.23

,, ,, sea level = 0.00

$\delta = 5 \quad 5'.3$

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
June.	26^{th}	8^h	44.3^m	5	2′	21″	Tanakadate	Katō
,,	,,	10	37.9	,,	5	54	'Katō	Sinzyō
,,	,,	11	51.3	,,	8	35	Sinzyō	Katō
,,	,,	13	40.7	,,	11	5	Tanakadate	,,
,,	,,	15	21.7	,,	8	53	Sinzyō	Tanakadate
,,	,,	16	17.3	,,	8	45	Tanakadate	Katō
,,	,,	17	56.8	,,	6	14	Katō	Sinzyō
,,	,,	19	13.1	,,	6	20	Tanakadate	Katō
,,	,,	21	52.6	,,	7	20	,,	Tanakadate
,,	27^{th}	1	9.0	,,	6	50	,,	,,
,,	,,	4	19.2	,,	5	54	,,	,,
,,	,,	6	5.0	,,	3	45	,,	,,
,,	,,	7	30.1	,,	2	24	,,	Katō
,,	,,	8	30.3	,,	2	50	Sinzyō	,,
				To be continued				

Continued

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
June.	27th	8h	49.8m	5	2′	39″	Katō	Sinzyō
,,	,,	10	32.7	,,	5	20	,,	,,
,,	,,	12	40.9	,,	8	46	Sinzyō	Katō
,,	,,	13	46.0	,,	10	2	,,	Tanakadate
,,	,,	14	57.4	,,	10	3	Katō	Katō
,,	,,	15	57.3	,,	9	7	Sinzyō	,,
,,	,,	16	59.4	,,	8	37	Katō	Sinzyō
,,	,,	19	13.4	,,	7	15	Tanakadate	Katō
,,	,,	20	34.1	,,	7	24	Sinzyō	Tanakadate
,,	,,	22	18.4	,,	7	8	,,	Sinzyō
,,	28th	2	20.1	,,	5	55	,,	,,
,,	,,	2	57.1	,,	5	5	,,	,,
,,	,,	5	10.0	,,	3	14	,,	,,
,,	,,	6	11.7	,,	2	42	,,	,,
,,	,,	7	17.8	,,	0	53	,,	Tanakadate
,,	,,	8	14.4	,,	1	36	Katō	,,
,,	,,	10	29.3	,,	5	20	Tanakadate	Sinzyō
,,	,,	13	8.4	,,	10	39	Sinzyō	Katō
,,	,,	14	51.1	,,	10	37	Tanakadate	Tanakadate
,,	,,	18	25.1	,,	6	33	Sinzyō	Katō
Mean				5	6′	40″		

δ = 5 6′.67
Reduction to 1895.0 = −0.70
,, ,, sea level = 0.00
δ = 5 6′.0

DIP (θ)
Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder.
June.	29th	13h	15m	2	51	52′.1	Nakamura	Imamura
,,	,,	17	17	1	52	0.6	Imamura	Nakamura
,,	,,	23	45	1	51	57.3	Nakamura	Imamura
,,	30th	12	15	2	,,	54.9	Imamura	Nakamura
,,	,,	16	10	2	,,	57.1	Nakamura	Imamura
Mean					51	56′.4		

θ = 51 56′.4
Reduction to 1895.0 = 0.00
,, ,, sea level = 0.00
θ = 51 56′.4

Observations of the South Party, 1894

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Oct.	25th	12h	57m	2	51	51′.8	Nakamura	Imamura
,,	,,	19	22	—	,,	52.0	,,	Nakamura
,,	26th	11	7	—	,,	59.1	Imamura	,,
,,	,,	22	30	2	52	2.7	,,	Imamura
,,	27th	5	57	2	51	52.7	Nakamura	Nakamura
,,	,,	10	21	—	,,	59.5	Imamura	Imamura
,,	,,	13	57	—	,,	53.3	Nakamura	Nakamura
,,	,,	15	39	2	,,	59.3	Imamura	Imamura
,,	,,	18	41	2	,,	53.9	Nakamura	Nakamura Imamura
,,	,,	20	0	1	,,	58.8	Imamura	Nakamura
,,	28th	6	58	1	52	4.0	Nakamura	,,
Mean					51	57′.0		

θ = 51 57′.0
Reduction to 1895.0 = 0.00
,, ,, sea level = 0.00
δ = 51° 57′.0

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
June 26th 9h 45m	5614.2	51° 57′.9	Tanakadate	Katō
,, ,, 14 56	5613.2	52 1.5	Katō	Tanakadate
,, 27th 9 55	5614.2	51 50.1	Sinzyō	Katō
,, ,, 16 37	5613.2	52 7.0	Tanakadate	Sinzyō
,, ,, 17 42	5614.2	,, 3.0	Sinzyō	Katō
,, ,, 19 57	5613.2	,, 8.4	Katō	Tanakadate
,, 28th 9 40	5314.2	51 49.5	Tanakadate	Katō
,, ,, 17 10	5613.2	,, 54.7	Sinzyō	,,
,, ,, 17 53	5613.2	,, 55.6	Tanakadate	,,
Mean		51° 58′.6		

$\theta = 51°$ 58′.6
Reduction to 1895.0 = 0.00
,, ,, sea level = 0.00
$\theta = 51°$ 58′.6

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 9th 8h 22m	13	51° 58′.3	Sinzyō	Tanakadate
,, ,, 9 17	13	,, 57.1	Tanakadate	Sinzyō
,, ,, 10 25	14	,, 55.9	Sinzyō	Tanakadate
,, ,, 11 47	14	,, 57.1	Tanakadate	Sinzyō
Mean		51° 57′.1		

$\theta = 51°$ 57′.1
Reduction to 1895.0 = 0.00
,, ,, sea level = 0.00
$\theta = 51°$ 57′.1

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
June 29th 10h 54m	0.28678	442.26	31°.1C	s 5.9036	31.7C	6°38′52″.0	15 11′12″.5	30.5C	Imamura	Nakamura
,, ,, 15 59	0.28692	441.89	29.8	5.9054	30.8	6 39 0.0	15 12 19.4	28.8	Nakamura	Imamura
,, 30th 9 54	0.28643	442.19	30.3	5.9073	30.8	6 39 15.0	15 12 3.8	29.8	,,	,,
,, ,, 18 14	0.28639	442.70	28.3	5.9032	28.3	6 39 34.4	15 12 41.9	28.3	Imamura	Nakamura
Mean	0.28663									

$H =$ 0.28663
Reduction to 1895.0 = 120
,, ,, sea level = 40
$H =$ 0.28665

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Oct. 25th 14h 30m	0.28634	439.37	21°.8C	s 5.9256	22°.5C	6°36′36″.2	15 5′24″.4	21°.2C	Imamura	Nakamura
,, 26th 8 37	0.28618	442.80	12.2	5.9029	12.0	6 36 46.3	15 12 20.0	12.4	Nakamura	Imamura
,, ,, 16 55	0.28593	442.31	14.3	5.9087	14.3	6 39 41.9	15 12 19.4	14.4	Imamura	Nakamura
,, ,, 21 17	0.28603	441.52	15.5	5.9145	16.0	6 39 6.6	15 11 5.6	151.	Nakamura	Imamura
Mean	0.28612									

$H =$ 0.28612
Reduction to 1895.0 = 013
,, ,, sea level = 040
$H =$ 0.28613

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 26th 13^h 34^m	0.28604	435.84	20°.4C	$\overset{s}{5}$.9023	20°.5C	6°34′57″.0	14°56′17″.5	20°.3C	Tanakadate	Katō
,, ,, 13 55	0.28587	436.33	18.2	5.9[illegible]08	18.4	6 35 52.5	14 58 42.5	18.0	Sinzyō Katō	,, Sinzyō
,, 27th 8 10	0.28587	437.01	17.6	5.8959	17.6	6 36 15.0	14 59 13.8	17.5	,, Tanakadate	Tanakadate Katō
,, ,, 12 7	0.28564	436.09	19.3	5.9043	19.2	6 35 32.5	14 57 2[illegible].3	19.4	Katō Sinzyō	Sinzyō Katō
,, ,, 13 23	0.28600	436.20	20.0	5.8997	19.8	6 35 7.5	14 56 31.3	20.2	,, Tanakadate	Tanakadate Sinzyō
,, ,, 21 44	0.28639	436.72	19.7	5.8932	19.9	6 35 11.3	14 56 40.0	19.5	Katō Sinzyō	,, Katō
,, 28th 8 1	0.28617	436.45	20.4	5.8968	20.4	6 35 6.3	14 56 22.5	20.4	Tanakadate Katō	,, Tanakadate
,, ,, 14 23	0.28602	432.99	29.3	5.9220	29.2	6 32 13.8	14 50 12.5	29.4	,, Sinzyō	Sinzyō Katō
Mean	0.26800									

H=0.28600
Reduction to 1895.0= −114
,, ,, sea level= 40
H=0.28599

Observationsof the North Party, 1894

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 9th 7^h 38^m	*0.28593	430.95	26°.7C	$\overset{s}{5}$.9371	26°.7C	—	—	—	Tanakadate	Sinzyō
,, ,, 15 21	0.28604	430.41	28.2	6.9403	28.4	6°29′46″.3	14°44′12″.5	28°.1C	Sinzyō Tanakadate	Tanakadate Sinzyō
Mean	0.28599									

H=0.28599
Reduction to 1895.0= −161
,, ,, sea level= 40
H=0.28598

Sendai Syuttyō. (仙 臺 出 張)

Observations of the North Party. 1895.

(1) (瑞鳳寺靈屋下)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 9th 17^h 1^m	13	51° 56′.7	Sinzyō	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 9th 16^h 26^m	*0.28559	430.90	26.9C	$\overset{s}{5}$.9411	26.9C	—	—	—	Tanakadate	Sinzyō

(2) (第二高等學校運動場内北方)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 9th 18^h 30^m	13	51° 47′.5	Sinzyō	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 9th 17^h 51^m	*0.28495	431.50	25°.3C	$\overset{s}{5}$.9435	25°.3C	—	—	—	Tanakadate	Sinzyō

(3) (第二高等學校運動場内東方)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 10th 18h 47m		51 57.0	Sinzyō	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 10th —	*0.28464	433.10	21.2C	s 5.9354	21.2C	—	—	—	Tatibara	Sinzyō

(4) (宮城野練兵場内. 八幡森)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 10th 10h 24m	3	51 52.8	Sinzyō	Sinzyō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observar	Recorder
Sept. 10th —	*0.28594	430.90	25.9C	s 5.9375	26.9C	—	—	—	Sinzyō	Sinzyō

(5) **Siogama** (鹽釜 (山ノ寺還))

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 11th 10h 37m	13	51° 56.3	Sinzyō	Tatibara

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observar	Recorder
Sept. 11th —	*0.28531	431.35	25.9C	s 5.9409	25.9C	—	—	—	Sinzyō	Sinzyō

163. KOGOTA.

Aza Hunairi (小牛田村字船人)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
June	29th	12h	23.8m	5°	17′	47″	Katō	Sinzyō
,,	,,	12	54.6	,,	18	17	Tanakadate	,,
,,	,,	14	40.0	,,	19	10	Sinzyō	Tanakadate
,,	,,	15	49.8	,,	18	40	Katō.	Sinzyō
,,	,,	17	32.9	,,	16	39	Tanakadate	,,
,,	,,	19	6.7	,,	15	41	Katō	Tanakadate
,,	,,	20	11.6	,,	15	36	,,	Katō
,,	,,	21	17.9	,,	15	41	,,	,,
,,	,,	23	21.9	,,	15	4	,,	,,
,,	30th	3	18.3	,,	13	9	,,	,,
,,	,,	6	44.3	,,	13	24	,,	Tanakadate
,,	,,	7	56.3	,,	11	48	Sinzyō	,,
,,	,,	9	7.0	,,	10	53	Tanakadate	Sinzyō
,,	,,	10	29.9	,,	15	40	Katō	,,
,,	,,	11	32.7	,,	18	13	Sinzyō	Tanakadate
,,	,,	12	57.6	,,	16	56	Tanakadate	Katō
,,	,,	14	31.8	,,	19	24	Sinzyō	,,
,,	,,	15	45.3	,,	18	8	Katō	,,
,,	,,	17	6.9	,,	17	19	,,	,,
,,	,,	18	13.0	,,	18	9	,,	,,
,,	,,	18	53.7	,,	17	50	,,	,,
,,	,,	19	57.8	,,	15	57	,,	,,
,,	,,	20	51.7	,,	15	25	,,	,,
,,	,,	21	5.36	,,	15	18	,,	,,
,,	,,	23	31.0	,,	14	57	,,	,,
Mean				5	15′	13″		

δ = 5° 15.22

Reduction to 1895.0 = −0.74

,, ,, sea level = 0.00

δ = 5° 14.5

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
June 29th 15h 31m	13	52 5′.5	Tanakadate	Sinzyō
,, ,, 16 59	13.2	,, 12.8	Sinzyō	Katō
,, 30th 7 26	14.2	,, 9.6	,,	Tanakadate
,, 10 1	4	,, 8	Tanakadate	Sinzyō
,, 11 10	14	,, 9.8	Katō	Tanakadate
,, 13 58	3	,, 8.2	,,	Sinzyō
Mean		52° 9′.1		

$\theta = 52 \quad 9'.1$

Reduction to 1895.0 = 0.05

,, ,, sea level = 0.00

$\theta = 52° \quad 9'.2$

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
June 29th 14h 8m	0.28850	434.63	25°.0C	5s.8889	26°.4C	6°30′53″.8	14°47′ 1″.3	23°.6C	Sinzyō, Kotō	Katō, Sinzyō
,, ,, 18 36	0.28849	436.62	18.9	5.8725	19.2	6 32 37.5	14 51 16.3	18.5	Tanakadate, Sinzyō	,, Tanakadate
,, 30th 8 43	0.28782	437.13	17.2	5.8749	17.3	6 33 25.0	14 52 18.8	17.2	,, Tanakadate	,, Sinzyō
Mean	0.28827									

$= H \quad 0.28827$

Reduction to 1895.0 = −111

,, ,, sea level = 0

$H = 0.28826$

Kogota Syuttyō (小 午 田 出 張)

Observations of the North Party, 1895.

(1) (北浦村字彫堂小學校)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
June 30th 17h 28m	13	52° 19′.5	Sinzyō	Sinzyō
,, ,, 18 16	11	,, 14.4	Tanakadate	Tanakadate
Mean		52 17′.0		

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
June 30th 16h 42m	*0.28757	437.06	18°.2C	5s.8780	18°.2C	—	—	—	,, Sinzyō	,, Tanakadate
,, ,, 16 51	*0.28741	437.16	17.9	5.8787	17.9	—	—	—		
Mean	0.28751									

(2) (小午田村字牛飼)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
June 30th 21h 3m	11	52° 23′.2	Sinzyō	Tanakadate
,, ,, 22 17	3	,, 26.4	Tanakadate	Sinzyō
Mean		52° 24′.8		

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib?.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
June 30th 20h 28m	*0.28643	438.13	15°.0 C	s 5.8825	15°.0 C	—	—	—	Tanakadate	Sinzyō
,, ,, 20 41	*0.28623	438.29	14.5	5.8833	14.5	—	—	—	Sinzyō	Tanakadate
Mean	0.28633									

(3) 北浦村 (梅ノ木村ヘノ街道附近)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 13th — —	—	52° 12′.7	Sinzyō	Sinzyō

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib?.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Sept. 13th — —	*0.28714	431.20	26°.2 C	s 5.9229	26°.2 C	—	—	—	Tatibara	Sinzyō

(4) (不動村道傍)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 13th — —	—	52° 8′.0	Tatibara	Sinzyō

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib?.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Sept. 13th — —	*0.28747	432.60	22.6C	s 5.9097	22.6C	—	—	—	Tatibara	Sinzyō

164. GAMON.

Wakayanagimachi (若柳町字我門)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 2nd 12h 2.7m	5° 17′ 44″	Katō	Tanakadate
,, ,, 13 13.6	,, 18 56	Tanakadate	Katō
,, ,, 14 17.5	,, 18 54	,,	Tanakadate
,, ,, 15 34.5	,, 17 53	Katō	,,
,, ,, 17 22.3	,, 14 21	Tanakadate	Katō
,, ,, 18 25.4	,, 13 39	Katō	Tanakadate
,, ,, 19 56.3	,, 14 28	Sinzyō	Sinzyō
,, ,, 20 45.9	,, 14 34	,,	,,
,, ,, 23 0.5	,, 13 45	Katō	Katō
,, 3rd 0 20.5	,, 14 4	,,	,,
,, ,, 3 37.7	,, 12 50	,,	,,
,, ,, 7 35.5	,, 9 31	Sinzyō	Tanakadate
,, ,, 8 42.9	,, 10 29	Tanakadate	Sinzyō
,, ,, 9 57.6	,, 13 8	,,	,,
,, ,, 11 37.4	,, 15 43	Sinzyō	Tanakadate
,, ,, 13 34.6	,, 18 11	Katō	,,
,, ,, 14 59.4	,, 17 31	Tanakadate	Katō
Mean	5° 14′ 7″		

δ = 5° 14′.12

Reduction to 1895.0 = −0.78

,, ,, sea level = 0.00

δ = 5° 13′.3

DIP (θ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 2nd 15h 0m	13	52° 44.0	Katō	Tanakadate
,, ,, 17 59	13	,, 43.8	Tanakadate	Katō
,, 3rd 9 29	3	,, 44.2	Sinzyō	Tanakadate
,, ,, 13 7	4	,, 40.9	Tanaka late	Sinzyō
,, ,, 11 32	14	,, 41.3	Sinzyō	Katō
,, ,, 15 43	11	,, 40.8	Katō	Tanakadate
Mean		52 42!7		

$\theta=52°$ 42!7
Reduction to 1895.0 = 0.10
,, ,, sea level = 0.00
$\delta=52°$ 42!8

HORIZONTAL INTENSITY (H)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 2nd 13h 57m	0.28193	435.41	20.9C	s 5.9487	21.1C	6°40′33!8	15° 9′30!0	20.7C	Tanakadate, Katō	Katō, Tanakadate
,, ,, 19 11	0.28172	436.20	19.5	5.9451	19.7	6 41 16.8	15 10 43.8	19.4	,, Tanakadate	,, Katō
,, 3rd 8 11	0.28174	435.76	19.5	5.9476	19.5	6 40 53.8	15 10 1.3	19.6	,, Sinzyō	Sinzyō, Tanakadate
Mean	0.28180									

$H=0.28180$
Reduction to 1895.0 = −121
,, ,, sea level = 13
$H=0.28179$

Gamon Syuttyō (我 門 出 張)

Observations of the North Party, 1895.

(1) (石越村字熊野堂)

Dat and Hour (Mean Local Time.)	Needle No	θ	Observer	Recorder
Sept. 8th 8h 32m	13	52° 30!5	Sinzyō	Tanakadate

Date and Hour (Mean Local Time)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 8th 7h 47m	*0.28188	431.21	26.3C	s 5.9779	26.3C	—	—	—	Tanakadate	Sinzyō

(2) (熊野堂ト八幡山ノ間ニアル畑中.カヤノ木ノアリシ處)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 8th 10h 47m	13	52 43!1	Sinzyō	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 8th 9h 45m	*0.28117	430.24	28.8C	s 5.9924	28.8C	—	—	—	Tanakadate	Sinzyō
,, ,, 9 55	*0.28123	430.24	28.8	5.9945	28.8	—	—	—	,,	,,
Mean	0.28120									

(3) Mt. Yahata (八 幡 山)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 8th 11h 12m	13	52 35!2	Sinzyō	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 8th 13^h 29	*0.28155	430.78	27°.4C	$\overset{s}{5.9848}$	27°.4C	—	—	—	Tanakadate	Sinzyō

(4) (志波姫村字白幡龍昌寺境内小字堰淵閣)

Date and Hour (Mean Local Time)	Needle No.	θ	Observer	Recorder
Sept. 8th 15^h 58^m	13	52 41.9	Sinzyō	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 8th 15^h 16^m	*0.28154	430.08	29.2C	$\overset{s}{5.9896}$	29°.2C	—	—	—	Tanakadate	Sinzyō

165. MIDZUSAWA.

Hidakazinsya (日高神社境内)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time)				δ			Observer	Recorder
July	4th	13^h	25.9^m	5	13′	37″	Sinzyō	Katō
,,	,,	15	2.8	,,	15	6	Katō	Sinzyō
,,	,,	16	18.2	,,	12	45	Sinzyō	Katō
,,	,,	18	2.3	,,	11	18	,,	,,
,,	,,	19	5.1	,,	10	16	Katō	Sinzyō
,,	,,	20	58.0	,,	12	31	Tanakadate	Tanakadate
,,	,,	22	38.2	,,	12	49	,,	,,
,,	5th	0	59.9	,,	12	[illegible]	Sinzyō	Sinzyō
,,	,,	5	10.2	,,	10	52	,,	,,
,,	,,	5	51.5	,,	9	53	,,	,,
,,	,,	6	43.8	,,	8	22	Tanakadate	Katō
,,	,,	8	10.9	,,	9	4	Katō	,,
,,	,,	9	13.2	,,	10	23	Tanakadate	,,
,,	,,	10	24.4	,,	12	43	Katō	,,
,,	,,	11	25.3	,,	16	4	,,	,,
,,	,,	13	5.3	,,	17	36	Sinzyō	Sinzyō
,,	,,	14	50.6	,,	18	25	,,	,,
Mean				5	13′	6″		

$\delta = 5°\ 13'.10$

Reduction to 1895.0 $= -0.84$

,, ,, sea level $= 0.00$

$\delta = 5°\ 12'.3$

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ	Observer	Recorder
July	4th	17^h	40^m	13	52° 42.1	Katō	Sinzyō
,,	,,	18	38	13	,, 43.2	Sinzyō	Katō
,,	5th	8	41	13	,, 41.4	Tanakadate	,,
Mean					52° 42.2		

$\theta = 52°\ 42'.2$

Reduction to 1895.0 $= 0.20$

,, ,, sea level $= 0.00$

$\theta = 52°\ 42'.4$

HORIZONTAL INTENSITY (H)

Observ tions of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 4th 14h 32m	0.28117	434.10	26°.1 C	s 5.9351	26°.6 C	6°36′ 3″.8	14 59′ 0″.0	25°.6 C	Katō Sinzyō	Sinzyō Katō
,, ,, 20 21	0.28364	435.32	22.0	5.9298	21.7	6 37 21 .3	15 1 23.3	22.4	,, Katō	,, Sinzyō
,, 5th 7 41	0.28387	436.04	20.6	5.9237	20.7	6 38 3 .8	15 3 21 .9	20.6	,, Tanakadate	Tanakakat Katō
,, ,, 14 11	0.28407	433.33	28.6	5.9412	29.0	6 35 14 .4	14 56 52 .5	28.3	Katō Sinzyō	Sinzyō Katō
Mean	0.28394									

$H=$ 0.28394

Reduction to 1895.0 = −129

,, ,, sea level = 27

$H=$ 0.28393

Midzusawa Syuttyō (水 澤 出 張)

Observations of the North Party, 1895.

(1)

Ruin of old castle (舊 城 趾)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 5th 18h 5m	13	52 40′.3	Sinzyō	Katō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 5th 17h 14m	*0.28369	433.97	26°.6 C	s 5.9397	26.6 C	—	—	—	Katō	Sinzyō
,, ,, 17 24	*0.28330	433.86	27.0	5.9415	27.0	—	—	—	Sinzyō	Katō
Mean	0.28365									

166. HANAMAKI.

(後 河 原)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	δ			Observer	Recorder
July 5th 22h 50.0m	5	29′	8″	Tanakadate	Tanakadate
,, 6th 0 24.9	,,	28	25	,,	,,
,, ,, 2 56.9	,,	28	34	,,	,,
,, ,, 4 40.6	,,	27	23	,,	,,
,, ,, 7 46.6	,,	24	24	Sinzyō	Katō
,, ,, 9 14.8	,,	25	14	Katō	Sinzyō
,, ,, 10 12.9	,,	27	51	Sinzyō	Katō
,, ,, 11 17.8	,,	32	0	Katō	Sinzyō
,, ,, 12 35.7	,,	35	14	Sinzyō	Katō
,, ,, 13 44.8	,,	33	42	,,	,,
,, ,, 14 39.0	,,	35	33	Tanakadate	,,
,, ,, 16 33.7	,,	33	30	Katō	Tanakadate
,, ,, 17 49.7	,,	31	52	Sinzyō	Katō
,, ,, 18 50.3	,,	31	15	Tanakadate	Sinzyō
,, ,, 20 29.9	,,	30	31	Sinzyō	Katō
,, ,, 21 30.1	,,	30	30	,,	,,
Mean	5	30′	17″		

$\delta=5°$ 30′.28

Reduction to 1895.0 = −0.92

,, ,, sea level = −0.01

$\delta=5°$ 29′.1

DIP (θ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 6th 11h 23m	14	52° 59′.0	Katō	Sinzyō
,, ,, 11 56	14	,, 57.8	Sinzyō	Katō
,, ,, 16 36	13	,, 57.4	Tanakadate	Sinzyō
,, ,, 18 28	13	53 3.2	Sinzyō	Katō
,, ,, 19 33	13	,, 2.1	Tanakadate	Sinzyō
Mean		52° 59′.9		

θ = 52° 59′.9
Reduction to 1895.0 = 0.36
,, ,, sea level = 0.00
θ = 53° 0′.3

HORIZONTAL INTENSITY (H)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibⁿ.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 6th 8h 52m	0.28226	435.30	24°.5C	5.9443 s	24.0C	6°39′18″.1	15° 6′ 8″.1	25°.0C	Sinzyō / Katō	Katō / Sinzyō
,, ,, 13 20	0.28191	433.42	28.0	5.9698	27.5	6 37 55.6	15 2 57.5	28.6	,, / Sinzyō	,, / Katō
,, ,, 21 4	0.28167	435.67	20.5	5.9488	20.4	6 40 50.0	15 9 51.3	20.6	,, / Tanakadate	Tanakadate / Sinzyō
Mean	0.28195									

H = 0.28195
Reduction to 1895.0 = −137
,, ,, sea level = 82
H = 0.28194

Hanamaki Syuttyō (花 巻 出 張)

Observations of the North Party, 1895.

(1) Park Toriyagasaki ruin of Hanamaki castle (花卷城趾鳥谷ヶ崎公園)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 7th 8h 36m	13	53° 2′.4	Tanakadate / ,,	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibⁿ.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 7th 9h 22m	*0.28139	434.11	26°.4C	5.9630 s	26°.4C	—	—	—	Sinzyō	Tanakadate
,, ,, 9 38	*0.28132	434.06	26.6	5.9641	26.6	—	—	—	Tanakadate	Sinzyō
Mean	0.28136									

167. MORIOKA.

Inarimae (下厨川村字稲荷前)

DECLINATION (δ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 7th 15h 22.5m	5° 37′ 13″	Tanakadate	Katō
,, ,, 16 55.3	,, 34 6	Sinzyō	,,
,, ,, 18 42.5	,, 32 33	Tanakadate	Sinzyō
,, 18 51.4	,, 32 23	,,	,,
,, ,, 19 49.5	,, 33 14	,,	,,
,, ,, 20 54.5	,, 33 21	Katō	Katō
,, ,, 22 4.5	,, 33 40	,,	,,
,, 8th 1 39.6	,, 33 33	,,	,,
	To be Continued		

Continued

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 8th 2h 14.8m	5° 33′ 13″	Katō	Katō
,, ,, 4 26.1	,, 32 33	,,	,,
,, ,, 6 17.0	,, 30 12	,,	,,
,, ,, 7 20.2	,, 28 0	,,	,,
,, ,, 8 36.5	,, 27 59	,,	,,
,, ,, 9 50.8	,, 30 53	,,	,,
,, ,, 11 6.9	,, 35 19	,,	,,
,, ,, 12 42.1	,, 38 9	,,	,,
,, ,, 14 11.5	,, 39 10	Tanakadate	,,
,, ,, 14 28.4	,, 39 10	,,	,,
,, ,, 15 30.7	,, 38 29	,,	,,
,, ,, 16 24.9	,, 36 52	,,	,,
Mean	5° 33′ 31″		

$\delta = 5°\ 33'.52$

Reduction to 1895.0 = −0.98

,, ,, sea level = −0.01

$\delta = 5°\ 32'.5$

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 7th 16h 23m	14	53° 12′.0	Sinzyō	Katō
,, 8th 9 19	14	,, 11.3	Tanakadate	Sinzyō
,, ,, 14 56	13	,, 11.0	Katō	Tanakadate
Mean		53° 11′.4		

$\theta = 53°\ 11'.4$

Reduction to 1895.0 = 0.41

,, ,, sea level = 0.01

$\theta = 53°\ 11'.8$

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 7th 19h 24m	0.28262	435.03	21°.4C	s 5.9444	21°.8C	6°39′ 6″.2	15° 5′52″.5	20°.9C	Tanakadate / Sinzyō	Sinzyō / Tanakadate
,, 8th 8 11	0.28269	435.61	21.3	5.9367	20.5	6 38 58.8	15 5 27.5	22.2	,,	,,
,, ,, 13 25	0.28268	433.57	26.4	5.9519	25.9	6 37 10.0	15 1 21.3	26.9	Tanakadate	Sinzyō
Mean	0.28266									

$H = 0.28266$

Reduction to 1895.0 = −128

,, ,, sea level = 177

$H = 0.28267$

Morioka Syuttyō (盛 岡 出 張)

Observations of the North Party, 1895.

(1) (舊上田村宿茶屋)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 8th 19h 19m	14	53° 15′.3	Tanakadate	Katō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 8th 18h 42m	*0.28159	435.95	19°.4C	s 5.9479	19.4C	—	—	—	Tanakadate	Katō
,, ,, 18 51	*0.28127	436.32	18.3	5.9487	18.3	—	—	—	Katō	Tanakadate
Mean	0.28143									

(2) North shore of Riv. Kuriya (厨川北岸)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer.	Recorder
Sept. 7th 13h 20m	13	53° 7'.8	Sinzyō	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 7th 12h 29m	*0.28316	429.07	31°.8C	s 5.9796	31.8C	—	—	—	Tanakadate	Sinzyō
,, ,, 12 40	*0.28288	428.80	32.5	5.9844	32.5	—	—	—	,,	,,
Mean	0.28302									

(3) Ruin of old castle, Morioka (盛岡舊城趾本丸内中ノ口西)

Date and Hour (Mean Local Times.)	Needle No.	θ	Observer	Recorder
Sept. 7th 16h 41m	13	53° 7'.1	Sinzyō	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 7th 15h 49m	*0.28218	429.69	30°.2C	s 5.9855	30°.2C	—	—	—	Tanakadate	Sinzyō
,, ,, 15 58	*0.28192	429.65	30.3	5.9885	30.3	—	—	—	,,	,,
Mean	0.28205									

168. NAKAYAMA.

Goryōti (西田子御料地字中山大塚野地)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 9th 12h 36.6m	5° 54' 57"	Sinzyō	Katō
,, ,, 14 2.7	,, 55 43	Katō	Sinzyō
,, ,, 15 24.7	,, 54 25	Tanakadate	,,
,, ,, 16 29.1	,, 52 20	Katō	[illegible]
,, ,, 17 37.1	,, 50 33	Tanakadate	Katō
,, ,, 18 42.2	,, 50 2	Sinzyō	Tanakadate
,, ,, 19 49.1	,, 50 9	,,	,,
,, ,, 22 30.0	,, 49 58	,,	Sinzyō
,, 10th 0 1.2	,, 49 57	,,	,,
,, ,, 5 51.9	,, 46 35	,,	,,
,, ,, 7 3.0	,, 43 38	Tanakadate	Katō
,, ,, 7 57.1	,, 43 18	Katō	Tanakadate
,, ,, 9 26.9	,, 44 34	Tanakadate	Katō
,, ,, 10 35.9	,, 47 52	Katō	Sinzyō
,, ,, 11 35.2	,, 51 31	Sinzyō	Katō
,, ,, 12 24.9	,, 53 2	Katō	Sinzyō
,, ,, 12 35.2	,, 53 13	Sinzyō	Katō
Mean	5° 49' 36"		

$\delta = 5°\ 49'.60$

Reduction to 1895.0 = $-1'.03$

,, ,, sea level = -0.04

$\delta = 5°\ 48'.5$

DIP (θ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 9th 15h 2m	13	53° 29′.9	Tanakadate	Katō
,, ,, 20 22	14	,, 34.8	Katō	Tanakadate
,, 10th 8 45	14	,, 31.8	Tanakadate	Katō
,, ,, 11 17	14	,, 30.0	Sinzyō	,,
,, ,, 13 26	14	,, 36.2	Katō	Sinzyō
Mean		53° 32′.5		

θ = 53° 32′.5
Reduction to 1895.0 = 0.52
,, ,, sea level = 0.02
θ = 53° 33′.0

HORIZONTAL INTENSITY (H)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 9th 13h 40m	0.28079	434.68	23°.4C	s 5.9667	23°.9C	6°41′13″.8	15 10′36″.3	22.9C	Tanakadate Sinzyō	Sinzyō Tanakadate
,, ,, 19 25	0.28072	436.50	16.1	5.9544	16.6	6 43 11.3	15 15 10.0	15.6	Katō Tanakadate	,, Katō
,, 10th 7 33	0.28078	435.75	18.3	5.9577	18.3	6 42 17.5	15 13 15.0	18.3	,, Katō	,, Tanakadate
Mean	0.28076									

H = 0.28076
Reduction to 1895.0 = −127
,, ,, sea level = 589
H = 0.28081

Nakayama Syuttyō (中 山 出 張)

Observations of the North Party, 1895.
(西田子御料地字カリシヤ)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 9th 16h 31m	14	53 52′.3	Sinzyō	Katō
,, ,, 17 2	14	,, 50.3		
Mean		53° 51′.3		

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 9th 15h 33m	0.28029	434.46	23°.4C	s 5.9721	23°.4C	—	—	—	Sinzyō	Katō
,, ,, 15 48	0.28006	434.47	23.4	5.9745	23.4	—	—	—		
Mean	0.28018								,,	,,

169. HATINOHE.

Siragizinsya (八戸長者山新羅神社)

DIP (θ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 12th 8h 0m	14	54° 9′.9	Sinzyō	Kato

θ = 54° 9′.9
Reduction to 1895.0 = 0.72
,, ,, sea level = 0.00
θ = 54° 10′.6

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections		Temp. t_D	Observer	Recorder
						φ_1	φ_2			
July 11th 19^h 30^m	0.27774	433.30	17°.6C	^{s} 5.9875	17°.9C	6°47′12″.5	15°24′22″.5	17°.3C	Katō / Tanakadate	Tanakadate / Katō

$H =$ 0.27774
Reduction to 1895.0 = −123
" " sea level = 53
$H =$ 0.27773

Hatinohe Syuttyō (八戸出張)

Observations of the North Party, 1895.

(1) (櫟 塚)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 6th 18^h 5^m	13	54 8′.4	Sinzyō	Sinzyō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections		Temp. t_D	Observer	Recorder
						φ_1	φ_2			
Sept. 6th 17^h 2^m	*0.27806	429.86	29°.8C	^{s} 6.0287	29°.8C	—	—	—	Sinzyō	Sinzyō
" " 17 16	*0.27814	429.96	29.4	6.0271	29.4	—	—	—	"	"
Mean	0.27810									

(2) (郡役所前)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 6th 20^h 22^m	13	54° 10′.7	Sinzyō	Sinzyō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections		Temp. t_D	Observer	Recorder
						φ_1	φ_2			
Sept. 6th 19^h 32^m	*0.27681	432.14	23.9C	^{s} 6.0235	23°.9C	—	—	—	Sinzyō	Sinzyō

170. KOMINATOTAIRA.

Field in Samemura (鮫村原野)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	12th	14^h	30.8^m	4°	59′	57″	Katō	Sinzyō
"	"	15	26.5	"	59	4	Sinzyō	Katō
"	"	16	40.3	"	57	43	"	"
"	"	17	38.0	"	55	54	"	"
"	"	18	29.3	"	55	0	"	"
"	"	19	39.5	"	54	24	Tanakadate	"
"	"	21	29.6	"	54	32	Sinzyō	Sinzyō
"	"	23	27.2	"	54	0	"	"
"	13th	1	7.1	"	54	37	"	"
"	"	2	23.8	"	53	4	"	"
"	"	5	34.9	"	50	22	"	"
"	"	6	28.4	"	49	25	"	"
"	"	7	36.1	"	51	45	Tanakadate	"
"	"	8	38.8	"	52	7	"	Katō
"	"	10	35.4	"	55	18	"	"
"	"	11	25.7	"	57	49	Katō	Tanakadate
"	"	12	32.4	"	59	27	Sinzyō	Sinzyō
"	"	14	8.9	5	0	35	"	"
"	"	15	0.2	4	59	45	Tanakadate	"
"	"	20	24.4	"	54	12	"	"
Mean				4°	54′	52″		

$\delta = 4°$ 54′.87
Reduction to 1895.0 = −1.15
" " sea level = 0.00
$\delta = 4°$ 53′.7

DIP (θ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 12th 16h 3m	14	51° 14.1	Tanakadate	Kato
,, ,, 20 35	4	,, 17.0	Sinzyō	Sinzyō
,, 13th 9 39	13	,, 24.2	Kato	Tanakadate
Mean		51° 18.4		

θ = 54° 18.4
Reduction to 1895.0 = 0.63
,, ,, sea level = 0.00
θ = 54° 19.0

HORIZONTAL INTENSITY (H)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 12th 15h 3m	0.27725	434.92	21°.3C	s 6.0039	22°.2C	6 47′ 1″.3	15°24′22″.5	20°.5C	Tanakadate Katō	Katō Tanakadate
,, ,, 19 10	0.27725	436.54	16.7	5.9904	16.8	6 48 17.5	15 27 12.5	16.6	,, Tanakadate	,, Katō
,, 13th 8 17	0.27687	436.31	16.9	5.9952	16.7	6 48 40.0	15 27 47.5	17.1	,, Sinzyō	Sinzyō Tanakadate
,, ,, 13 21	0.27590	434.99	20.3	6.0175	21.0	6 48 35.0	15 27 17.5	19.7	Tanakadate	Katō
,, ,, 21 8	0.27649	436.68	17.2	5.9983	17.4	6 49 2.5	15 28 5.0	16.9	Sinzyō Tanakadate	Tanakadate
Mean	0.27675									

H = 0.27675
Reduction to 1895.0 = −119
,, ,, sea level = 000
H = 0.27674

Kominatotaira Syuttyō (小舟渡平出張)

Observations of the North Party, 1895.

	Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
(1)	July 13th 16h 6m	*0.27308	435.86	18°.6C	s 6.0407	18°.6C	—	—	—	Tanakadate	Sinzyō
(2)	,, ,, 16 31	*0.27270	436.14	17.6	6.0429	17.6	—	—	—	Tanakadate	Sinzyō
(3)	,, ,, 16 54	*0.27570	436.14	17.6	6.0099	17.6	—	—	—	Tanakadate	Sinzyō
(4)	,, ,, 17 15	*0.27348	435.23	17.3	6.0336	17.3	—	—	—	Tanakadate	Sinzyō

171. ŌNO.

Simokawara (下河原)

DECLINATION (δ)
Observations of the North Party, 1895.

Daet and Hour (Mean Local Time.)	δ	Observer	Recorder
July 14th 17h 40.8m	4 21′ 43″	Tanakadate	Tanakadate
,, ,, 18 35.7	,, 20 45	,,	,,
,, ,, 19 39.0	,, 20 15	,,	,,
,, ,, 21 59.8	,, 21 44	Katō	Katō
,, ,, 23 50.1	,, 21 43	,,	,,
,, 15th 3 27.4	,, 20 54	,,	,,
,, ,, 7 22.7	,, 16 25	,,	,,
,, ,, 8 38.1	,, 16 5	Tanakadate	Sinzyō
	To be continued		

Continued.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July. 15th 10h 5.5m	4 19′ 13″	Tanakadate	Sinzyō
" " 11 14.2	" 21 4	Katō	Tanakadate
" " 12 52.7	" 24 9	"	"
" " 13 43.2	" 25 3	Tanakadate	Katō
" " 14 40.6	" 25 14	"	Tanakadate
" " 15 55.8	" 24 26	"	Katō
" " 17 5.9	" 21 58	Katō	Tanakadate
" " 18 26.3	" 20 25	Tanakadate	Katō
Mean	4 20′ 44″		

$\delta = 4°\ 20'.73$

Reduction to 1895.0 = −1.04

" " sea level = −0.02

$\delta = 4°\ 19'.7$

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 15th 9h 26m	13	53 57.0	Tanakadate	Sinzyō
" " 15 29	14	" 56.8	"	Katō
" " 17 53	13	" 56.9	Katō	Tanakadate
Mean		53 57.2		

$\theta = 53°\ 57'.2$

Reduction to 1895.0 = 0.43

" " sea level = 0.01

$\theta = 53°\ 57'.6$

HORIZONTAL INTENSITY (*H*)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July. 14th 21h 8m	0.28109	436.48	16°.5C	s 5.9504	16°.9C	6°42′30″.0	15°13′23″.8	16°.1C	Tanakadate / Sinzyō	Sinzyō / Tanakadate
" 15th 9 15	0.28127	436.62	17.2	5.9475	17.6	6 42 22.5	15 13 10.0	16.9	" / Tanakadate	" / Sinzyō
" " 14 20	0.28129	435.25	18.9	5.9569	19.4	6 41 35.0	15 12 7.5	18.4	Katō / Tanakadate	Tanakadate / Katō
Mean	0.28122									

H = 0.28122

Reduction to 1895.0 = −64

" " sea level = 274

H = 0.28124

Ōno Syuttyō (大野出張)

Observations of the North Party, 1895.

(1) (大野字清三平)

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 14th 18h 36m	*0.28039	436.69	15°.3C	s 5.9553	15°.3C	—	—	—	Sinzyō	Katō
" " 18 45	*0.28014	436.78	15.0	5.9575	15.0	—	—	—	Katō	Sinzyō
Mean	0.28027									

(2) (大野字中山)

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 14th 19h 23m	*0.27994	437.62	14.0C	s 5.9576	14°.0C	—	—	—	Sinzyō	Katō
" " 19 35	*0.27996	437.10	13.7	5.9574	13.7	—	—	—	Katō	Sinzyō
Mean	0.27995									

172. KUZI.

Tyōkyūzimura (久慈町長久寺村新井田)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	16th	12h	57.3m	5°	5′	46″	Tanakadate	Katō
,,	,,	14	13.9	,,	6	24	Katō	Tanakadate
,,	,,	16	13.5	,,	6	17	Sinzyō	Katō
,,	,,	17	2.3	,,	5	40	Tanakadate	Sinzyō
,,	,,	18	0	,,	4	33	Katō	,,
,,	,,	19	35.6	,,	3	20	Sinzyō	Katō
,,	,,	21	8.4	,,	2	48	,,	Sinzyō
,,	,,	23	17.0	,,	4	1	,,	,,
,,	17th	0	32.0	,,	3	55	,,	,,
,,	,,	2	22.5	,,	3	39	,,	,,
,,	,,	5	19.8	,,	1	35	,,	,,
,,	,,	7	30.2	,,	0	21	,,	Tanakadate
,,	,,	8	54.1	,,	1	11	Tanakadate	Katō
,,	,,	10	13.1	,,	2	0	Katō	Tanakadate
,,	,,	11	27.2	,,	3	48	,,	Katō
,,	,,	12	27.3	,,	5	45	,,	,,
,,	,,	13	29.4	,,	6	14	,,	,,
,,	,,	14	29.6	,,	6	25	Sinzyō	Sinzyō
,,	,,	15	19.3	,,	9	24	,,	,,
Mean				5	3′	34″		

	δ = 5	3′.57
Reduction to	1895.0 =	−1.02
,, ,,	sea level =	0.00
	δ = 5	2′.6

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	16th	15h	33m	14	54°	0′.4	Tanakadate	Katō
,,	,,	19	8	14	,,	1.9	Sinzyō	,,
Mean					54°	1′.2		

	θ = 54°	1′.2
Reduction to	1895.0 =	0.38
,, ,,	sea level =	0.00
	θ = 54	1′.6

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 16th 13h 50m	0.28058	435.51	20°.7 C	5s.9629	21°.2C	6°42′22″.5	15°13′18″.8	20°.3C	{ Tanakadate Katō	{ Katō Tanakadate
,, ,, 20 35	0.28042	435.62	19.1	5.9637	19.6	6 42 42.5	15 14 0.0	18.6	{ ,, Sinzyō	{ Sinzyō Katō
,, 17th 8 35	0.28005	435.58	20.1	5.9672	20.3	6 42 48.8	15 13 51.2	20.0	{ Katō Tanakadate	{ Tanakadate Katō
Mean	0.28035									

	H =	0.28035
Reduction to	1895.0 =	− 48
,, ,,	sea level =	00
	H =	0.28035

Kuzi Syuttyō (久 慈 出 張)

Observations of the North Party, 1895.

(1) Araida Pasture (新 井 田 牧 場)

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	17th	9h	45m	13	54	3′.0	Katō	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 17th 17h 28m	*0.28203	435.75	19°.3C	5.9415 s	19°.3C	—	—	—	Sinzyō	Katō
,, ,, 17 37	*0.28207	435.82	19.0	5.9436	19.0	—	—	—	Katō	Sinzyō
Mean	0.28205									

(2) (長 内 町)

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 17th 19h 9m	*0.28213	436.07	18°.0C	5.9412 s	18°.0C	—	—	—	Katō	Sinzyō
,, ,, 19 19	*0.28221	436.12	17.8	5.9403	17.8	—	—	—	Sinzyō	Katō
Mean	0.28217									

173. AKKA.

Mr. Tamasawa's vegitable ground (玉澤氏所有畑)

DIP (θ)

Observations of the North Party, 1895.

Date and Horur (Mean Local Time.)	Needle No	θ	Observer	Recorder
July 18th 20h 37m	14	53° 33'.2	Sinzyō	Katō

$\theta = 53°$ 33'.2

Reduction to 1895.0 = 0.34

,, ,, sea level = 0.00

$\theta = 53°$ 33'.5

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 18th 19h 41m	*0.28138	435.69	18°.3C	5.9517 s	18°.3C	—	—	—	Katō	Sinzyō
,, ,, 19 53	*0.28120	435.71	18.2	5.9535	18.2	—	—	—	Sinzyō	Katō
Mean	0.28129									

$H =$ 0.28129

Reduction to 1895.0 = −66

,, ,, sea level = 137

$H =$ 0.28130

174. ANAZAWA.

Nakagawara (小川村穴澤中河原)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 19th 17h 6.8m	4 42′ 7″	Katō	Tanakadate
,, ,, 18 26.5	,, 41 28	Sinzyō	Katō
,, ,, 19 37.6	,, 41 24	,,	,,
,, ,, 21 11.4	,, 41 43	Katō	,,
,, ,, 22 17.7	,, 42 32	,,	,,
,, 20th 2 54.0	,, 41 56	,,	,,
,, ,, 7 3.2	,, 36 49	,,	,,
,, ,, 9 12.3	,, 38 22	Tanakadate	Sinzyō
	To be continued		

Date and Hour (Mean Local Time.)	θ	Observer	Recorder
July 20th 10h 38.0m	4 40′ 41″	Tanakadate	Sinzyō
„ „ 12 40.9	„ 43 20	„	„
„ „ 13 36.8	„ 43 47	„	„
„ „ 14 58.3	„ 43 36	Sinzyō	Katō
„ „ 16 5.5	„ 42 39	Katō	„
Mean	4° 41′ 12″		

δ=4 41.′2
Reduction to 1895.0 = −1.00
„ „ sea level = −0.03
δ=4 40.′2

DIP (θ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 19th 17h 29m	14	53° 26.′4	Sinzyō	Katō
„ „ 20 29	13	„ 24.3	Tanakadate	Sinzyō
„ 20th 14 28	14	„ 21.2	Katō	Katō
Mean		53° 24.0		

θ=53° 24.0
Reduction to 1895.0 = 0.27
„ „ sea level = 0.01
θ=53 24.3

HORIZONTAL INTENSITY (*H*)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n^.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 19th 19h 15m	0.28123	434.20	23°.1C	s 5.9645	23°.4C	6°39′58.″8	15° 7′35.″0	22°.8C	Tanakadate Sinzyō	Sinzyō Tanakadate
„ 20th 9 45	0.28144	433.73	24.3	5.9661	24.8	6 39 35.0	15 7 7.5	23.9	„ Tanakadate	Sinzyō
„ „ 9 58	0.28137	433.73	24.6	5.9661	24.8	6 39 18.8	15 6 5.0	24.4	„ Sinzyō	„ Tanakadate
„ „ 13 19	0.28204	433.49	26.1	5.9629	27.1	6 38 36.3	15 4 45.0	25.1	Tanakadate	Sinzyō
Mean	0.28152									

H= 0.28152
Reduction to 1895.0 = − 47
„ „ sea level = 4 0
H= 0.28156

Anazawa Syuttyō (穴 澤 出 張)

Observations of the North Party, 1895.

	Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n^.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
(1)	July 20th 11h 22m	*0.28160	432.79	28°.5C	s 5.9700	28°.5C	—	—	—	Sinzyō	Tanakadate
(2)	„ „ 7 28	*0.28289	434.17	23.0	5.9609	23.0	—	—	—	Tanakadate	Sinzyō

175. IWAIZUMI.

(岩泉字中屋.畑中)

HORIZONTAL INTENSITY (*H*)
Observations of the North Party, 1895.
(*Value deduced from Vibration only by assuming Value of M)

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n^.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 21st 7h 0m	*0.28386	439.98	20°.0C	s 5.9310	20°.0C	—	—	—	Sinzyō	Katō

H= 0.28386
Reduction to 1895.0 = − 55
„ „ sea level = 109
H= 0.28386

Iwaizumi Syuttyō (岩 泉 出 張)

Observations of the North Party, 1895.
(岩泉村大字杉木)

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 21st 13^h 12^m	*0.28259	433.92	24.2C	$\overset{s}{5.9517}$	24.2C	—	—	—	Katō	Sinzyō

176. MIYAKO.

Hudiwarakawara (藤 原 河 原)

DECLINATION (δ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 22nd 11^h 11.6^m	5 40′ 29″	Sinzyō	Katō
,, ,, 12 40.7	,, 41 56	Katō	Sinzyō
,, ,, 13 14.0	,, 42 27	Tanakadate	,,
,, ,, 14 22.6	,, 40 56	,,	,,
,, ,, 15 19.2	,, 39 22	Sinzyō	,,
,, ,, 17 43.5	,, 36 50	Tanakadate	,,
,, ,, 18 49.9	,, 37 1	Sinzyō	Tanakadate
,, ,, 20 4.5	,, 37 20	,,	,,
,, ,, 22 4.3	,, 37 10	Katō	Katō
,, ,, 23 16.7	,, 36 57	Tanakadate	Tanakadate
,, 23rd 2 23.5	,, 35 50	,,	,,
,, ,, 4 34.3	,, 35 37	,,	,,
,, ,, 6 33.4	,, 32 56	,,	,,
,, ,, 7 29.0	,, 32 24	Sinzyō	Katō
,, ,, 8 40.1	,, 34 9	,,	,,
,, ,, 9 28.8	,, 36 39	,,	,,
,, ,, 11 5.2	,, 40 3	,,	,,
Mean	5° 37′ 59″		

$\delta = 5°\ 37'.98$
Reduction to 1895.0 $= -0.95$
,, ,, sea level $= 0.00$
$\delta = 5°\ 37'.0$

DIP (θ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 22nd 12^h 14^m	13	53 22′.2	Tanakadate	Katō
,, ,, 21 10	13	,, 29.6	Katō	,,
,, 23rd 10 28	14	,, 20.9	Tanakadate	Tanakadate
Mean		53° 24′.2		

$\theta = 53°\ 24'.2$
Reduction to 1895.0 $= 0.17$
,, ,, sea level $= 0.00$
$\theta = 53°\ 24'.4$

HORIZONTAL INTENSITY (H)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 22nd 14^h 1^m	0.28185	434.46	20°.9C	$\overset{s}{5.9553}$	20°.9C	6°39′41″.9	15° 7′35″.6	21°.0C	{Sinzyō, Tanakadate}	{Tanakadate, Katō}
,, ,, 19 38	0.28181	434.96	20.7	5.9533	20.9	6 40 0.0	15 7 52.6	20.5	,,	Sinzyō
,, 23rd 8 11	0.28161	434.96	21.4	5.9546	21.4	6 40 7.5	15 7 57.5	21.3	{Sinzyō, Katō}	{Katō, Sinzyō}
Mean	0.28176									

$H = 0.28176$
Reduction to 1895.0 $= -39$
,, ,, sea level $= 00$
$H = 0.28176$

177. OGUNI.

(小國字末角. 榊原所有畑)

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 24th 14h 51m	14	52 58'.4	Tanakadate	Katō
,, ,, 18 4	11	53 3.0	Katō	Tanakadate
Mean		53 0'.7		

$\theta = 53°$ 0'.7
Reduction to 1895.0 = 0.21
,, ,, sea level = 0.00
$\delta = 53$ (?)

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 24th 14h 54m	*0.28158	432.14	30°.8C	s 5.9748	30°.8C	—	—	—	Tanakadate	Katō
,, ,, 15 22	*0.28100	433.39	26.0	5.9721	26.0	—	—	—	Katō	Tanakadate
Mean	0.28129									

H = 0.28129
Reduction to 1895.0 = − 70
,, ,, sea level = 135
H = 0.28130

178. TŌNO.

Siroiwa, Kamo Zinsya (白岩村加茂神社)

DECLINATINO (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 26th 10h 37.3m	5° 19' 56"	Tanakadate	Sinzyō
,, ,, 11 57.2	,, 24 39	,,	Katō
,, ,, 13 3.9	,, 25 21	Katō	Sinzyō
,, ,, 14 39.3	,, 25 43	,,	,,
,, ,, 15 45.9	,, 24 54	,,	Katō
,, ,, 16 44.6	,, 23 14	,,	,,
,, ,, 17 42.6	,, 22 36	,,	,,
,, ,, 18 38.6	,, 22 47	,,	,,
,, ,, 20 28.6	,, 22 58	Tanakadate	,,
,, ,, 23 22.6	,, 21 52	Sinzyō	Sinzyō
,, 27th 0 32.4	,, 20 15	,,	,,
,, ,, 1 23.9	,, 20 8	,,	,,
,, ,, 2 50.4	,, 18 48	,,	,,
,, ,, 4 45.3	,, 18 36	,,	,,
,, ,, 5 55.3	,, 19 18	,,	,,
,, ,, 6 49.7	,, 19 18	,,	,,
,, ,, 7 27.1	,, 18 5	Tanakadate	,,
,, ,, 8 31.5	,, 19 4	,,	Tanakadate
,, ,, 9 30.5	,, 19 6	,,	,,
,, 10 27.0	,, 20 3	,,	,,
Mean	5° 21' 40"		

$\delta = 5°$ 21'.67
Reduction to 1865.0 = −0.92
,, ,, sea level = −0.02
$\delta = 5$ 20'.7

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 26th 11h 38m	14	53° 9'.3	Sinzyō	Katō
„ 27th 6 18	13	„ 10.1	„	Sinzyō
„ „ 10 3	13	„ 7.2	Tanakadate	Tanakadate
Mean		53° 8'.9		

$\theta = 53°\ 8'.9$

Reduction to 1895.0 = 0.17

„ „ sea level = 0.01

$\theta = 53°\ 9'.1$

HORIZONTAL INTENSITY (*H*)

Observations of the North Party 1895.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 26th 14h 12m	0.28254	432.67	28°.2C	5s.9605	28°.1C	6°33'45".0	15° 0'36".2	28.4C	Tanakadate	Katō
„ „ 20 1	0.28216	434.57	22.0	5.9523	22.4	6 39 15.0	15 6 8.1	21.5	Katō	Tanakadate
„ 27th 9 4	0.28197	434.05	22.5	5.9557	22.0	6 38 50.0	15 5 25.0	23.0	Sinzyō	„
Mean	0.28222									

$H = 0.28222$

Reduction to 1895.0 = − 71

„ „ sea level = 365

$H = 0.28225$

Tōno Syuttyō (遠野出張)

Observations of the North Party, 1895.

(1) **Simokawara** (下河原)

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 25th 19h 22m	*0.28285	434.75	20°.4C	5s.9428	20°.4C	—	—	—	Tanakadate	Sinzyō

(2) (松崎村字白岩早瀬河畔ナル水車ノ東)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 26th 16h 6m	14	53° 11'.3	Sinzyō	Tanakadate

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 26th 15h 36m	*0.28203	432.82	27.3C	5s.9652	27°.8C	—	—	—	„	„

(3) (遠野町後方觀音院東)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 23th 18h 3m	14	53° 11'.0	Sinzyō	Tanakadate

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_v	Observer	Recorder
July 26th 17h 29m	*0.28209	433.42	25.5C	5s.9607	25.5C	—	—	—	Tanakadate	Sinzyō

179. KAMAISI.

Suga-kaigan (釜石町字須賀海岸)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	28th	10h	57.9m	4°	31′	59″	Tanakadate	Sinzyō
,,	,,	11	37.1	,,	32	21	Katō	Tanakadate
,,	,,	11	47.0	,,	32	7	,,	,,
,,	,,	12	37.9	,,	32	14	Tanakadate	Sinzyō
,,	,,	13	22.6	,,	31	58	,,	,,
,,	,,	14	31.1	,,	31	38	Sinzyō	,,
,,	,,	15	22.1	,,	31	59	,,	,,
,,	,,	16	18.8	,,	31	2	,,	,,
,,	,,	18	16.1	,,	29	53	Tanakadate	,,
,,	,,	20	0.5	,,	29	41	Sinzyō	Tanakadate
,,	,,	21	32.9	,,	28	52	Tanakadate	Sinzyō
,,	29th	0	34.7	,,	28	35	Katō	Katō
,,	,,	1	5.1	,,	28	33	,,	,,
,,	,,	4	10.3	,,	27	59	,,	,,
,,	,,	5	6.1	,,	26	56	,,	,,
,,	,,	6	4.1	,,	27	7	,,	,,
,,	,,	6	57.1	,,	25	51	,,	,,
,,	,,	7	42.7	,,	26	27	,,	,,
,,	,,	9	1.9	,,	27	59	Sinzyō	Sinzyō
,,	,,	9	49.2	,,	28	44	Tanakadate	,,
,,	,,	10	55.3	,,	30	3	Sinzyō	Tanakadate
,,	,,	12	23.7	,,	31	23	,,	,,
Mean				4	29′	12″		

δ = 4° 29′.20

Reduction to 1895.0 = −0.90

,, ,, sea level = 0.00

δ = 4° 28′.3

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	28th	12h	5m	14	52°	45′.4	Sinzyō	Katō
,,	,,	19	30	13	,,	44.8	Tanakadate	Sinzyō
,,	29th	10	26	13	,,	48.2	Sinzyō	Tanakadate
Mean					52°	46′.4		

θ = 52° 46′.1

Reduction to 1895.0 = 0.06

,, ,, sea level = 0.00

θ = 52° 46′.2

HORIZONTAL INTENSITY (*H*)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time)	*H*	*M*	Mean Temp.	Time of 1-Vibr.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 28th 14h 0m	0.28314	432.81	24°.8C	5.9540 s	25°.1C	6° 36′ 10″.0	14° 59′ 4″.4	24°.6C	Katō Tanakadate	Tanakadate Katō
,, ,, 20 55	0.28319	434.46	21.2	5.9385	21.3	6 37 21.3	15 2 2.5	21.0	Sinzyō Tanakadate	,, Sinzyō
,, 29th 8 21	0.28333	434.49	20.8	5.9397	20.9	6 37 45.0	15 3 13.8	20.7	,, Sinzyō	,, Tanakadate
,, ,, 11 31	0.28337	433.57	24.3	5.9460	24.4	6 36 36.3	15 0 17.5	24.3	,,	,,
Mean	0.28334									

H = 0.28334

Reduction to 1895.0 = − 40

,, ,, sea level = 00

H = 0.28334

Kamaisi Syuttyō (釜 石 出 張)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 28th —	*0.28373	434.47	21.9C	5.9356 s	21.9C	—	—	—	Katō	Tanakadate

180. KESENNUMA.

Motomatigawara (元 町 河 原)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	31st	14h	33.6m	5	2′	36″	Sinzyō	Katō
,,	,,	15	42.0	,,	0	48	,,	,,
,,	,,	16	38.6	,,	0	5	Tanakadate	Sinzyō
,,	,,	17	39.4	4	59	12	Katō	Katō
,,	,,	18	44.1	,,	59	4	,,	,,
,,	,,	19	25.0	,,	59	4	,,	Sinzyō
,,	,,	21	3.5	,,	59	24	Tanakadate	Tanakadate
,,	,,	22	7.4	,,	59	35	,,	,,
,,	,,	23	47.9	,,	58	47	,,	,,
Aug.	1st	1	49.4	,,	57	31	,,	,,
,,	,,	4	10.5	,,	56	39	,,	,,
,,	,,	5	45.2	,,	54	54	,,	,,
,,	,,	6	39.0	,,	54	4	,,	,,
,,	,,	8	8.4	,,	55	55	,,	Sinzyō
,,	,,	9	5.6	,,	56	34	,,	Katō
,,	,,	9	45.2	,,	57	41	,,	,,
,,	,,	10	45.7	,,	59	6	Katō	Sinzyō
,,	,,	11	42.8	5	0	16	Sinzyō	Katō
,,	,,	12	31.9	,,	1	37	,,	,,
,,	,,	13	24.8	,,	3	0	,,	,,
,,	,,	14	29.7	,,	3	10	Tanakadate	Tanakadate
,,	,,	15	27.9	,,	2	19	,,	,,
,,	,,	16	32.5	,,	0	59	,,	Katō
,,	,,	17	36.4	,,	0	10	Katō	Tanakadate
,,	,,	18	57.5	4	59	43	,,	,,
,,	,,	19	51.7	,,	59	42	,,	,,
,,	2nd	13	45.2	5	1	53	Tanakadate	Katō
,,	3rd	15	53.2	,,	0	23	,,	Tanakadate
,,	,,	18	36.1	4	59	59	,,	,,
,,	,,	20	15.9	5	0	35	,,	,,
,,	4th	13	10.5	,,	3	40	,,	,,
,,	,,	13	58.1	,,	2	59	,,	,,
Mean				4°	58′	39″		

δ = 4° 58′.65

Reduction to 1895.0 = −0.88

,, ,, sea level = 0.00

δ = 4° 57′.8

DIP (θ)

Observations of the North Party, 1895.

Date and Hour Mean Local Time.				Needle No.	θ		Observer	Recorder
July	31st	16h	14m	13	52	22′.4	Katō	Sinzyō
Aug.	1st	10	22	14	,,	22.0	Sinzyō	Katō
,,	,,	18	21	14	,,	20.0	Tanakadate	,,
Mean					52	21′.5		

θ = 52° 21′.5

Reduction to 1895.0 = 0.06

,, ,, sea level = 0.00

θ = 52° 21′.6

HORIZONTAL INTENSITY.

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 31st 20^h 30^m	0.28430	434.65	20.9C	$\overset{s}{5.9299}$	21.4C	6°36′ 8″8	14 58′38″1	20.4C	{ Sinzyō Katō	{ Katō Sinzyō
Aug. „ 8 40	0.28388	435.27	21.2	5.9290	21.4	6 36 44.4	14 59 21.9	21.1	{ Tanakadate Katō	{ Katō Tanakadate
„ „ 8 58	0.28409	434.84	21.5	5.9290	21.4	6 36 17.5	14 58 51.9	21.6	Tanakadate	Katō
„ „ 14 2	0.28413	434.07	22.2	5.9343	22.2	6 35 45.6	14 57 55.0	22.2	{ Katō Tanakadate	{ Tanakadate Katō
Mean	0.28410									

$H =$ 0.28410
Reduction to 1895.0 = −75
„ „ sea level = 00
$H =$ 0.28409

Kesennuma Syuttyō (氣仙沼出張)

Observations of the North Party, 1895.

(1) (字内ノ脇河原)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 12st 18^h 34^m	14	52° 24.9	Tanakadate	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July. 31st 17^h 33^m	*0.28395	435.27	20.0C	$\overset{s}{5.9277}$	20.0C	—	—	—	Sinzyō	Tanakadate
„ „ 17 50	*0.28379	435.36	19.5	5.9289	19.5	—	—	—	Tanakadate	Sinzyō
Mean	0.28387									

(2) (横町山)

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 1st 7^h 3^m	*0.28423	435.36	19.5C	$\overset{s}{5.9243}$	19.5C	—	—	—	Katō	Sinzyō

181. ISINOMAKI.

Kadonowaki coast (門脇後町海濱)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time)	δ	Observer	Recorder
Aug. 6th 7^h 59.8^m	4 54′ 48	Tanakadate	Katō
„ „ 9 0.5	„ 57 52	„	„
„ „ 10 2.3	5 1 22	Katō	Tanakadate
„ „ 10 59.1	„ 3 13	Tanakadate	Katō
„ „ 11 40.4	„ 3 20	„	Tanakadate
„ „ 12 47.2	„ 3 19	Sinzyō	„
	To be continued		

Continued

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	6th	13h	53.4m	5°	2′	2″	Sinzyō	Tanakadate
,,	,,	14	43.0	,,	1	15	,,	Sinzyō
,,	,,	15	24.0	,,	1	40	,,	,,
,,	,,	16	15.5	,,	0	40	,,	,,
,,	,,	17	23.1	4	59	0	,,	,,
,,	,,	18	20.2	,,	58	15	Tanakadate	,,
,,	,,	19	29.8	,,	59	20	,,	,,
,,	,,	20	30.8	,,	59	24	Sinzyō	,,
,,	,,	22	7.5	,,	58	53	,,	,,
,,	,,	23	51.0	,,	58	57	,,	,,
,,	7th	3	12.7	,,	58	25	Tanakadate	Tanakadate
,,	,,	5	25.8	,,	57	15	,,	,,
,,	,,	6	42.2	,,	55	3	,,	,,
,,	,,	7	6.4	,,	53	13	,,	,,
,,	,,	7	42.6	,,	52	22	Sinzyō	Sinzyō
,,	,,	8	20.4	,,	52	40	,,	,,
Mean				4	59′	4″		

δ = 4° 59′.07
Reduction to 1895.0 = −0.86
,, ,, sea level = 0.00
δ = 4° 58′.2

DIP (θ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	6th	9h	40m	14	51°	47′.7	Katō	Tanakadate
,,	,,	13	24	13	,,	46.1	Sinzyō	,,
,,	,,	20	16	14	,,	45.9	,,	Sinzyō
Mean					51	46′.6		

θ = 51° 46′.6
Reduction to 1895.0 = 0.0
,, ,, sea level = 0.0
θ = 51° 46′.6

HORIZONTAL INTENSITY (*H*)
(* *Value deduced from Vibration only by assuming Value of M.*)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	6th	8h	40m	0.28773	435.00	21.80	5.89 0	21.50	6°31′22″.5	14 47′31″.3	22.10	Katō Tanakadate	Tanakadate Katō
,,	,,	12	20	0.28802	432.20	28.9	5.9089	29.7	6 28 53.8	14 42 12.5	28.2	,, Katō	,, Tanakadate
,,	,,	15	54	*0.28598	433.99	24.1	5.9157	24.1	—	—	—	,,	,,
,,	,,	19	6	0.28794	434.68	21.9	5.8919	22.3	6 31 12.5	14 47 22.5	21.4	Sinzyō Tanakadate	,, Sinzyō
M2an				0.28742									

H = 0.28742
Reduction to 1895.0 = −107
,, ,, sea level = 00 0
H = 0.28741

Isinomaki Syuttyō (石 巻 出 張)

Observations of the North Party, 1895.

(i) **Hiyoriyama** (日 和 山)

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	6th	16h	37m	13	51°	44′.3	Tanakadate	Tanakadate

Date and Hour (Mean Local Time)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 6th 15h 34m	*0.28732	433.99	24.1C	s 5.9619	24.1C	—	—	—	Tanakadate	Tanakadate

(2) **Station, 1887** (舊郵便局裏ノッ卜觀測點)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 7th 10h 19m	14	51° 43.'8	Sinzyō	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 7th 9h 19m	*0.28888	433.58	25.4C	s 5.8887	25.4C	—	—	—	Tanakadate	Sinzyō

(3) **Yamadorihama** (金華山ノ對岸山鳥濱)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 12th 7h 42m	13	51° 41.'2	Sinzyō	Tatibara
„ „ 16 54	„	„ 46.4	„	Sinzyo
Mean		51° 43.'8		

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflection. φ_1	φ_2	Temp. t_D	Observer	Recorder
Sept. 12th 7h 5m	*0.28419	432.50	22.8C	s 5.9444	22.8C	—	—	—	Tatibara	Sinzyō

(4) **Top of Mt. Kinkwa** (金華山ノ絕頂)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 12th 12h 54m	14	51° 46.'4	Sinzyō	Tatibara

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflection. φ_1	φ_2	Temp. t_D	Observer	Recorder
Sept. 12th 11h 35m	*0.28358	432.55	22.7C	s 5.9504	22.7C	—	—	—	Tatibara	Sinzyō

182. IKUSAZAWA.

Onikōbemura, Ikusazawa (鬼首村字戰澤)

DIP. (θ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time)	Needle No.	θ	Observer	Recorder
Aug. 8th 18h 3m	14	53° 10.'5	Sinzyō	Tanakadate

$\theta = 53°\ 10.'5$
Reduction to 1895.0 = 0.33
„ „ sea level = 0.00
$\theta = 53°\ 10.'9$

HORIZONTAL INTENSITY (H)
(* *Value deduced from Vibration only by assuming Value of M.*)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 8th 17^h 33^m	*0.28262	433.54	24°.8C	^{s} 5.9539	24°.8C	—	—	—	Tanakadate	Sinzyō

$H=$ 0.28262
Reduction to 1895.0 = −240
,, ,, sea level = 536
$H=$ 0.28265

183. SIMOINNAI.

South shore of Riv. Omono (御物川ノ南岸字田用橋)

DECLINATION (δ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time)	δ	Observer	Recorder
Aug. 9^h 20^h 5.5^m	5° 26′ 57″	Tanakadate	Katō
,, ,, 22 11.4	,, 25 31	Katō	,,
,, ,, 23 3.6	,, 25 10	,,	,,
,, 10th 0 53.2	,, 23 39	,,	,,
,, ,, 1 44.4	,, 22 52	,,	,,
,, ,, 4 4.0	,, 21 49	,,	,,
,, ,, 5 22.6	,, 20 11	,,	,,
,, ,, 6 40.1	,, 17 29	,,	,,
,, ,, 8 6.9	,, 19 12	Tanakadate	Sinzyō
,, ,, 9 14.7	,, 22 9	Sinzyō	Tanakadate
,, ,, 10 12.5	,, 24 14	,,	Sinzyō
,, ,, 10 35.0	,, 26 45	,,	,,
,, ,, 11 37.1	,, 30 5	,,	,,
,, ,, 12 29.5	,, 30 49	,,	Tanakadate
,, ,, 13 43.2	,, 29 34	Katō	Katō
,, ,, 14 39.8	,, 27 23	Sinzyō	,,
,, ,, 16 25.0	,, 25 54	Katō	,,
,, ,, 17 31.4	,, 26 34	,,	,,
,, ,, 18 20.4	,, 25 36	Sinzyō	,,
,, ,, 19 47.0	,, 25 28	Katō	,,
,, ,, 20 52.8	,, 22 10	Sinzyō	Sinzyō
,, ,, 21 24.4	,, 23 46	,,	,,
,, ,, 22 50.2	,, 24 47	,,	,,
,, ,, 23 41.0	,, 23 55	,,	,,
,, 11th 0 42.1	,, 23 41	,,	,,
,, ,, 2 19.1	,, 26 1	,,	,,
,, ,, 4 1.6	,, 23 47	,,	,,
,, ,, 5 26.6	,, 23 10	,,	,,
Mean	5° 24′ 42″		

$\delta = 5°$ 24′.70
Reduction to 1895.0 = −1.11
,, ,, sea level = −0.02
$\delta = 5°$ 23′.56

DIP (θ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 10th 8^h 50^m	13	52° 56′.0	Tanakadate	Sinzyō
,, ,, 11 28	—	,, 51.5	,,	Tanakadate
,, ,, 14 17	13	,, 59.0	Katō	Katō
,, ,, 15 29	14	53 0.4	Sinzyō	Sinzyō
Mean		52° 56′.7		

$\theta = 52$ 56′.7
Reduction to 1895.0 = 0.55
,, ,, sea level = 0.00
$\theta = 52$ 57′.3

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 10th 7h 44m	0.28189	433.13	25.8C	5.9632 s	25.3C	6°37'37".5	15° 1'58".8	26.3C	Katō / Tanakadate	Tanakadate / Sinzyō
.. .. 13 8	0.28198	434.49	30.3	5.9762	30.8	6 36 40.0	15 0 26.9	29.8	Katō / Sinzyō	.. / Katō
,, .. 19 16	0.28169	432.32	27.4	5.9733	27.5	6 37 43.8	15 2 44.3	26.8	,, / Katō	,, / Sinzyō
Mean	0.28185									

H = 0.28185
Reduction to 1895.0 = −251
.. .. sea level = 243
H = 0.28185

Simoinnai Svuttyō (下院内出張)

Observations of the North Party, 1895.

(1) Stasion, 1887 (村役場裏ノット測點)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 10th 17h 56m	14	52 56'.0	Sinzyō	Sinzyō

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 10th — —	*0.28357	430.63	32.7C	5.9645 s	32.7C	—	—	—	Sinzyō	Sinzyō

(2) (下院内後町)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 11th 8h 13m	13	52° 59'.1	Sinzyō	Sinzyō

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observar	Recorder
Aug 11th 7h 57m	*0.28321	432.31	27.6C	5.9564 s	27.6C	—	—	—	Sinzyō	Sinzyō

184. YOKOTE.

Hatiman-zinsya (八幡村八幡神社)

DECLINATION (δ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug	11th	15h	18.1m	5	28'	15"	Tanakadate	Kato
..	..	15	59.4	..	27	26	Sinzyō	..
..	..	17	47.7	..	24	56	..	..
..	,,	18	50.4	,,	25	5	,,	,,
..	..	21	6.6	..	25	32	Tanakadate	Tanakadate
,,	..	22	16.8	..	25	16	..	..
..	,,	23	33.7	..	25	15	..	..
	12th	1	43.3	..	25	15	..	..
..	..	4	47.4	..	24	41	..	..
,,	,,	5	59.0	..	23	50	..	..
..	..	6	57.0	..	23	11	..	..
..	..	8	23.9	..	23	10	,,	Katō
..	..	9	38.7	,,	23	38	Katō	..
..	..	10	41.0	..	26	4	..	..
..	..	11	41.8	..	27	41	..	..
..	,,	12	43.8	..	28	48	..	..
..	..	13	42.8	..	29	10	..	..
..	..	15	7.8	..	28	40	..	..
Mean				5	25'	37"		

δ − 5 = 25'.62
Reduction to 1895.0 = −1.15
,, ,, sea level = −0.01
δ − 5 = 24'.5

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 11th 17h 13m	14	53° 2′.4	Tanakadate	Katō
,, 12th 9 10	14	52 59.7	Katō	,,
,, ,, 14 33	13	53 0.7	Tanakadate	Tanakadate
Mean		53° 0′.9		

$\theta = 53°$ 0′.9
Reduction to 1895.0 = 0.61
,, ,, sea level = 0.00
$\theta = 53°$ 1′.5

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 11th 18h 24m	0.28415	430.80	31°.3C	s 5.9593	32°.2C	6°33′ 0″.0	14°51′47″.5	30°.5C	Katō Sinzyō	Sinzyō Katō
,, 12th 7 57	0.28426	432.99	26.0	5.9380	25.1	6 34 8.1	14 54 8.8	27.0	Sinzyō Tanakadate	Tanakadate Katō
,, ,, 13 20	0.28434	430.13	35.3	5.9616	36.0	6 31 55.0	14 49 13.8	34.6	,, Katō	,, Tanakadate
Mean	0.28425									

$H =$ 0.28425
Reduction to 1895.0 = −240
,, ,, sea level = 82
$H =$ 0.28423

Yokote Syuttyō (横 手 出 張)

Observations of the North Party, 1895.

Garden of Kosakaya (小坂屋庭前)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 12th 0h 13m	14	53 5′.2	Katō	Katō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 12h 22h 26m	*0.28367	433.75	23°.8C	s 5.9415	23°.8C	—	—	—	Sinzyō	Katō
,, ,, 22 37	*0.28370	433.78	23.7	5.9409	23.7	—	—	—	Katō	Sinzyō
Mean	0.28369									

185. KAKUDATE.

Nakagawamura (中 川 村)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 13th 4h 3.2m	4° 38′ 29″	Katō	Katō
,, ,, 6 2.1	,, 37 42	,,	,,
,, ,, 6 53.9	,, 36 26	,,	Tanakadate
,, ,, 8 4.9	,, 35 45	Tanakadate	Sinzyō
,, ,, 8 39.0	,, 36 0	Sinzyō	Tanakadate
,, ,, 9 30.3	,, 36 32	,,	,,
,, ,, 10 36.6	,, 38 51	,,	,,
,, ,, 12 4.7	,, 41 50	Tanakadate	,,
,, ,, 13 28.1	,, 42 44	,,	,,
	To be continued		

Continued

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 13th 14h 45.5m	4° 41′ 35″	Sinzyō	Sinzyō
,, ,, 15 33.4	,, 40 22	,,	,,
,, ,, 17 10.6	,, 33 50	,,	,,
,, ,, 18 7.3	,, 38 7	,,	,,
,, ,, 19 37.9	,, 37 51	Tanakadata	,,
,, ,, 21 23.3	,, 37 51	Sinzyō	Sinzyō
,, ,, 23 17.4	,, 38 17	,,	,,
,, 14th 0 18.5	,, 38 11	,,	,,
,, ,, 3 36.7	,, 38 19	,,	,,
,, ,, 4 36.3	,, 39 0	,,	,,
,, ,, 5 41.2	,, 38 7	Tanakadate	Tanakadate
Mean	4 38′ 10″		

δ = 4° 38′.67
Reduction to 1895.0 = −1.23
,, ,, sea level = 0.00
δ = 4° 37′.4

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 13th 9h 9m	13	53° 22′.2	Tanakadate	Sinzyō
,, ,, 12 56	14	,, 17.2	Sinzyō	Tanakadate
,, ,, 20 49	14	,, 19.5	,,	,,
Mean		53° 19′.6		

θ = 53° 19′.6
Reduction to 1895.0 = 0.67
,, ,, sea level = 0.00
θ = 53° 20′.3

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections		Temp. t_D	Observer	Recorder
						φ_1	φ_2			
Aug. 13th 7h 41m	0.28242	432.72	25°.4C	5^s.9617	25°.4C	6°37′ 0″.0	15 1′ 2″.5	25°.5C	Tanakadate / Sinzyō	Sinzyo / Tanakadate
,, ,, 14 9	0.28260	431.77	28.8	5.9583	29.5	6 36 2.5	14 58 50.0	28.2	Tanakakate / Katō	Katō / Tanakadate
,, ,, 19 4	0.28215	432.01	26.0	5.9709	25.6	6 36 52.5	15 0 41.3	25.4	Sinzyō / Tanakadate	,,
Mean	0.28239									

H = 0.28239
Reduction to 1895.0 = −245
,, ,, sea level = 55
H = 0.28237

Kakudate Syuttyō (角 舘 出 張)

Observations of the North Party, 1895.

(1) Kakudate Simonokawara (角舘下ノ河原)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 13th 16h 38m	14	54 2′.1	Tanakadate	Tanakakate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib2.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observar	Recorder
Aug. 13th 15h 57m	*0.28281	431.13	29.8C	s 5.9688	29.8C	—	—	—	Katō	Tanakadate

(2) (中川村鮲瀬河々岸)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 14th 6h 9m	14	51 11.4	Sinzyō	Sinzyō

186. KARIWANO.

Station, 1887 at Hotel Hatamura (旅宿畑村屋舊測點)

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time)	H	θ	Observer	Recorder
Aug. 14th 13h 29m	13	53 20.9	Tanakadate	Sinzyo

$\theta = 53\quad 20.9$

Reduction to 1895.0 = 1.07

„ „ sea level = 0.00

$\theta = 53\quad 22.0$

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 14th 12h 15m	*0.28353	431.31	29.8C	s 5.9600	29.8C	—	—	—	Sinzyō	Tanakadate
„ „ 13 14	*0.28341	431.27	29.9	5.9615	29.9	—	—	—	Tanakadate	Sinzyō
Mean	0.28347									

$H = 0.28347$

Reduction to 1895.0 = −271

„ „ sea level = 11

$H = 0.28345$

187. AKITA.

Site of old castle (舊城趾内小學校運動場)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 14th 20h 30.3m	5 24′ 15″	Sinzyō	Katō
„ „ 21 8.8	„ 23 46	Tanakadate	„
„ „ 23 31.8	„ 23 11	„	Tanakadate
„ 15th 1 3.7	„ 23 12	„	„
„ „ 4 23.7	„ 22 32	„	„
„ „ 5 36.9	„ 21 17	„	„
„ „ 6 38.2	„ 20 37	„	„
„ „ 7 15.7	„ 20 36	„	„
„ „ 8 23.3	„ 21 22	Sinzyō	Katō
„ „ 9 25.0	„ 21 39	Katō	Sinzyō
„ „ 10 35.3	„ 21 36	„	Katō
„ „ 11 27.2	„ 25 40	„	„
„ „ 12 16.4	„ 26 41	Sinzyō	„
„ „ 13 28.3	„ 26 26	„	„
	To be continued		

Continued

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 15th 14h 27.8m	5° 25′ 32″	Katō	Katō
,, ,, 15 43.2	,, 24 18	,,	,,
,, ,, 17 34.4	,, 22 56	Sinzyō	Sinzyō
,, ,, 18 48.2	,, 22 46	,,	,,
,, ,, 19 21.8	,, 23 18	,,	,,
,, ,, 20 4.7	,, 23 22	,,	,,
,, ,, 21 50.0	,, 22 26	,,	,,
,, ,, 23 37.5	,, 22 19	,,	,,
,, 16th 2 16.1	,, 22 24	,,	,,
,, ,, 3 26.8	,, 22 7	,,	,,
,, ,, 4 47.2	,, 21 34	,,	,,
,, ,, 5 37.9	,, 21 14	,,	,,
Mean	5° 23′ 13″		

δ = 5° 23′.22
Reduction to 1895.0 = −1.30
,, ,, sea level = 0.00
δ = 5° 21′.9

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 15th 9h 0m	13	53° 33′.0	Sinzyō	Katō
,, ,, 16 55	13	,, 33.0	Katō	,,
,, 16th 4 8	14	,, 29.5	Sinzyō	Sinzyō
Mean		53° 32′.8		

θ = 53° 32′.8
Reduction to 1895.0 = 0.93
,, ,, sea level = 0.00
θ = 53° 33′.8

HORIZONTAL INTENSITY (*H*)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 15th 8h 1m	0.28319	433.33	25°.0C	5s.9495	25.1C	6°36′18″.8	14°59′ 8″.8	25°.0C	Sinzyo Katō	Katō Sinzyō
,, ,, 13 4	0.28292	430.50	32.7	5.9748	33.8	6 34 17.5	14 54 31.3	31.7	,, Sinzyō	,, Katō
,, ,, 18 17	0.28292	431.61	28.8	5.9667	29.8	6 35 18.8	14 56 48.8	27.9	Katō Sinzyō	Sinzyō Katō
Mean	0.28301									

H = 0.28301
Reduction to 1895.0 = −322
,, ,, sea level = 000
H = 0.28298

Akita Syuttyo (秋 田 出 張)

Observations of the North Party, 1895.

(1) **Old castle.** (舊 城 趾)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 15th 10h 56m	13	53° 30′.1	Sinzyō	Sinzō

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 15th 10h 15m	*0.28295	432.13	27.9C	5s.9601	27°.9C	...	—		Katō	Sinzyō

(2) Akita Meteorological Observatory (秋田測候所)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 15th 15h 19m	13	53 33.4	Sinzyō ,,	Sinzyō ,,

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 15th 14h 28m	*0.28313	431.61	29.5C	s 5.9621	29.5C	—	—	—	Tanakadate	Sinzyō
,, ,, 14 44	*0.28319	431.08	31.0	5.9652	31.0	—	—	—	Sinzyō	Tanakadate
Mean										

(3) (舊城趾内小學校運動場.本莊ヨリ能代ニ至ル途中ニ立寄リ觀測ス)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 18th 7h 41m	14	53° 32.9	Katō	Katō

188. HONZYO.

Daisenziyama (大仙寺山)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 16th 17h 6.1m	5 15′ 6″	Tanakadate	Sinzyō
.. ,, 17 34.9	.. 14 48	..	..
.. ,, 18 41.9	.. 13 49	Sinzyō	..
.. ,, 20 16.8	.. 15 5	Tanakadate	..
. ,, 21 21.6	.. 14 18	..	Tanakadate
.. ,, 22 33.9	.. 14 43	..	..
.. 17th 2 28.3	.. 14 41	..	..
.. .. 4 42.1	.. 14 3	..	..
.. .. 6 12.7	.. 12 40	..	..
.. ,, 7 10.0	.. 11 29	Sinzyō	..
.. .. 8 11.7	.. 11 14	..	..
.. .. 9 42.9	.. 14 12	..	Sinzyō
.. .. 10 47.2	.. 16 29	..	..
.. .. 11 48.6	.. 18 6	..	..
.. .. 12 31.1	.. 18 33	..	..
,, .. 13 44.6	.. 18 18	Tanakadate	..
.. .. 15 37.5	.. 16 28	..	..
.. .. 16 38.6	.. 15 20	..	..
.. .. 17 20.6	.. 14 47	..	..
Mean	5° 14′ 54″		

$\delta = 5 \quad 14.90$

Reduction to 1895.0 = -1.24

,, ,, sea level = 0.00

$\delta = 5 \quad 13.7$

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 16th 20h 10m	14	53 17.4	Sinzyō	Sinzyō
,, 17th 9 2	13	,, 19.7	,,	,,
,, ,, 14 56	14	,, 15.0	Tanakadate	Tanakadate
Mean		53° 17.3		

$\theta = 53 \quad 17.31$

Reduction to 1895.0 = 0.81

,, ,, sea level = 0.00

$\theta = 53 \quad 18.1$

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp tv	Mean Deflections φ1	Mean Deflections φ2	Temp. tn	Observer	Recorder
Aug. 16th 18h 12m	0.28265	431.35	28°.4C	s 5.9692	28°.5C	6°35′24″.4	14°57′22″.5	28°.2C	Tanakadate, Sinzyō	Sinzyō, Tanakadate
,, 17th 7 45	0.28241	433.19	22.9	5.9577	22.7	6 37 15.0	15 1 21.3	23.1	,,	,,
,, ,, 13 23	0.28308	430.31	33.1	5.9744	34.1	6 34 5.0	14 54 21.3	32.1	Tanakadate ,,	Sinzyō ,,
Mean	0.28271									

$H = 0.28271$
Reduction to 1895.0 = −312
,, ,, sea level = 00
$H = 0.28268$

Honzyō Syuttyō (本荘出張)

Observations of the North Party, 1895.

(1) Old castle (舊城趾)

Date and Hour (Mean Local Time).	Needle No.	θ	Observer	Recorder
Aug. 17th 11h 52h	13	53° 22′.0	Tanakadate	Tanakadate

Date and Hour (Mean Local Time)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. tv	Mean Deflections φ1	Mean Deflections φ2	Temp. tn	Observer	Recorder
Aug. 17th 11h 6m	*0.28308	430.74	30°.8C	s 5.9687	30°.8C	—	—	—	Tanakadate	Tanakadate

(2) (石ワク)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 17th 17h 17m	14	53° 16′.1	Sinzyō	Sinzyō

189. NŌSIRO.

Usiroyati (後谷地)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 18th 20h 2.5m	5° 51′ 34″	Tanakadate	Sinzyō
,, ,, 21 8.9	,, 51 28	,,	Katō
,, ,, 21 40.8	,, 51 11	,,	,,
,, ,, 23 0.6	,, 50 58	,,	,,
,, 19th 1 1.0	,, 50 6	Katō	,,
,, ,, 2 12.9	,, 48 24	,,	,,
,, ,, 4 42.8	,, 48 1	,,	,,
,, ,, 6 12.8	,, 46 47	,,	,,
,, ,, 6 59.7	,, 45 47	,,	Tanakadate
,, ,, 8 13.0	,, 45 54	Tanakadate	Sinzyō
,, ,, 9 33.1	,, 48 54	Sinzyō	,,
,, ,, 10 30.5	,, 50 57	,,	,,
,, ,, 11 32.9	,, 53 51	,,	,,
,, ,, 12 24.2	,, 55 3	,,	,,
,, ,, 13 1.9	,, 54 57	,,	,,
,, ,, 14 6.0	,, 54 6	Tanakadate	Tanakadate
,, ,, 15 19.9	,, 53 29	,,	,,
,, ,, 16 6.8	,, 52 47	,,	,,
,, ,, 17 12.2	,, 51 42	,,	Sinzyō
,, ,, 18 19.8	,, 51 5	Sinzyō	Tanakadate
,, ,, 20 12.8	,, 50 33	,,	,,
,, 4th 22 14.9	,, 50 57	,,	Sinzyō
Mean	5° 50′ 23″		

δ = 5° 50′.38
Reduction to 1895.0 = 1.47
,, ,, sea level = 0.00
δ = 5° 48′.9

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 19th 8h 57m	13	54° 16.1	Sinzyō	Tanakadate
,, ,, 19 23	13	,, 15.9	Tanakadate	,,
,, ,, 21 19	14	,, 13.4	,,	,,
Mean		54 15.1		

$\theta=54$ 15.1

Reduction to 1895.0 = 1.13

,, ,, sea level = 0.00

$\theta=54$ 16.2

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 19th 7h 50m	0.27910	432.28	24.7C	5.9993	24.4C	6 41′ 16.3	15 11′ 0.0	25.0C	Sinzyō / Tanakadate	Tanakadate / Sinzyō / Katō
,, ,, 13 23	0.27948	430.32	32.4	6.0142	32.8	6 39 2.5	15 5 55.0	32.0	,,	
,, ,, 13 40	0.27965	430.55	32.5	6.0080	33.0	6 39 2.5	15 5 55.0	32.0	,,	,,
,, ,, 17 46	0.27918	431.23	28.5	6.0087	29.2	6 40 25.0	15 8 55.0	27.8	,,	,,
Mean	0.27935									

$H=$ 0.27935

Reduction to 1895.0 = −343

,, ,, sea level = 0

$H=$ 0.27932

Nōsiro Syuttyō (能 代 出 張)

(1) **Usiroyati** (後 谷 地)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 19th 11h 25m	13	54 25.0	Tanakadate	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflection φ_1	Mean Deflection φ_2	Temp. t_D	Observer	Recorder
Aug. 19th — —	*0.27798	431.46	28.3C	s 6.0182	28.3C	—	—	—	Tanakadate	Tanakadate

(2) **Station, 1887** (ノット觀測點)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 19th 15h 29m	13	54 10.9	Sinzyō	Sinzyō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t.	Maan Deflection φ_1	Maan Deflection φ_2	Temp. t_D	Observer	Recorver
Aug 19th 14h 54m	*0.27921	430.71	30.5C	s 6.0104	30.5C	—			Katō	Sinzyō

190. ODATE.

(上川沿村字根下戸牧場)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	20th	17h	23.0m	5	37′	49″	Tanakadate	Katō
,,	,,	18	11.7	,,	38	0	,,	Sinzyō
,,	,,	19	40.2	,,	38	32	Sinzyō	Kato
,,	,,	21	37.2	,,	38	9	,,	Tanakadate
,,	,,	22	34.6	,,	38	4	,,	Sinzyō
,,	21st	1	33.1	,,	36	40	,,	,,
,,	,,	4	31.1	,,	34	49	,,	,,
,,	,,	5	39.8	,,	33	39	,,	,,
,,	,,	6	26.3	,,	32	32	,,	,,
,,	,,	7	0.4	,,	31	59	,,	,,
,,	,,	8	14.6	,,	32	59	Tanakadate	Katō
,,	,,	9	26.4	,,	35	21	Katō	,,
,,	,,	10	24.6	,,	38	5	,,	,,
,,	,,	11	27.3	,,	40	47	,,	,,
,,	,,	12	17.5	,,	41	36	,,	,,
,,	,,	13	26.0	,,	41	7	,,	Sinzyō
,,	,,	15	9.3	,,	39	31	Sinzyō	,,
,,	,,	16	27.5	,,	37	40	,,	,,
,,	,,	17	2.5	,,	37	1	,,	,,
Mean				5°	37′	10″		

δ = 5° 37′.17
Reduction to 1895.0 = −1.44
,, ,, sea level = −0.01
δ = 5° 35′.7

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	20th	20h	53m	13	54	2′.3	Tanakadate	Katō
,,	21st	8	54	13	,,	3.5	Katō	,,
,,	,,	14	25	14	,,	0.4	Sinzyō	Sinzyō
Mean					54	2′.1		

θ = 54 2′.1
Reduction to 1895.0 = 1.02
,, ,, sea level = 0.00
θ = 54 3′.1

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections. φ_1	Mean Deflections. φ_2	Temp. t_D	Observer	Recorder
Aug.	20th	19h	13m	0.27918	432.65	24°.0C	s 5.9963	23°.9C	6°41′26″.9	15°11′10″.0	24°.1C	Katō Sinzyō	Sinzyō Katō
,,	21	7	53	0.27942	432.77	25.6	5.9923	25.2	6 41 7.5	15 10 30.0	26.0	Katō Tanakadate	Tanakadate Katō
,,	,,	13	34	0.27937	429.92	33.0	6.0139	32.9	6 38 28.8	15 4 22.5	33.1	Sinzyō Katō	,, Sinzyō
Mean				0.27932									

H = 0.27932
Reduction to 1895.0 = −283
,, ,, sea level = 110
H = 0.27930

Ōdate Syuttyō (大 館 出 張)

Observations of the North Party, 1895.

(1) Station, 1887 (花園旅館裏ノツト觀測點)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 21st 17h 0m	14	53° 57'.8	Katō	Katō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib.	Temp. t_v	Mean Deflections		Temp. t_D	Observer	Recorder
						φ_1	φ_2			
Aug. 21st 6h 30m	*0.27821	433.98	20°.4C	s 5.9977	20°.4C	—	—	—	Tanakadate	Sinzyō

(2) (下川濟字片山村天神堂)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 21st 9h 41m	13	54° 5'.4	Tanakadate	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib.	Temp. t_v	Mean Deflections		Temp. t_D	Observer	Recorder
						φ_1	φ_2			
Aug. 21st 10h 42m	*0.27906	431.48	28°.6C	s 6.0064	28°.6C	—	—	—	Tanakadate	Tanakadate

191. HIROSAKI.

Old castle (弘前舊城三ノ丸內)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour. (Mean Local Time.)	δ	Observer	Recorder
Aug. 22nd 12h 11.8m	5° 33′ 2″	Tanakadate	Katō
,, ,, 13 23.7	,, 32 57	Katō	Sinzyō
,, ,, 14 48.1	,, 30 4	Tanakadate	,,
,, ,, 15 41.0	,, 29 23	,,	Tanakadate
,, ,, 16 57.9	,, 28 58	,,	,,
,, ,, 17 41.0	,, 29 6	,,	Katō
,, ,, 18 48.5	,, 29 24	,,	,,
,, ,, 20 17.7	,, 29 41	,,	,,
,, ,, 21 32.9	,, 29 40	,,	,,
,, ,, 23 1.0	,, 29 26	,,	,,
,, 23rd 1 51.6	,, 27 58	,,	,,
,, ,, 4 35.1	,, 27 8	,,	,,
,, ,, 6 14.4	,, 25 56	,,	,,
,, ,, 7 29.0	,, 25 23	,,	,,
,, ,, 8 19.6	,, 25 19	,,	,,
,, ,, 9 50.0	,, 28 2	,,	,,
,, ,, 10 54.1	,, 30 21	,,	,,
,, ,, 11 47.8	,, 31 33	,,	,,
,, ,, 12 31.4	,, 32 25	,,	,,
Mean	5° 28′ 45″		

δ = 5° 28'.75

Reduction to 1895.0 = −1.54

,, ,, sea level = −0.01

δ = 5° 27'.2

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 22nd 14h 16m	13	54° 13.2	Sinzyō	Tanakadate
,, ,, 19 41	13	,, 14.4	Katō	Katō
,, 23rd 9 26	13	,, 14.4	Tanakadate	Tanakadate
Mean		54° 14.0		

$\theta = 54°\ 14.0$

Reduction to 1895.0 = 1.15

,, ,, sea level = 0.00

$\theta = 54°\ 15.2$

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 22nd 13h 1m	0.27998	429.75	34°.7 C	6.0103 s	35°.2 C	6°37′38″.8	15′ 2′26″.3	34°.1 C	Sinzyō / Tanakadate	Tanakadate / Sinzyō
,, ,, 18 23	0.27949	431.97	26.2	5.9958	26.5	6 40 18.8	15 8 20.0	26.0	Katō / Tanakadate	Tanakadate / Katō
,, 23rd 7 56	0.27957	431.59	28.3	5.9988	27.7	6 39 40.0	15 7 2.5	28.8	,, / Katō	,, / Tanakadate
Mean	0.27968									

$H = 0.27968$

Reduction to 1895.0 = −297

,, ,, sea level = 83

$H = 0.27966$

Hirosaki Syuttyō (弘 前 出 張)

Observations of the North Party, 1895.

(1) **Station, 1887** (旅舘石場久藏裏園ノツト觀測點)

Date and Hour (Mean Local Time.)	Needle No	θ	Observer	Recorder
Aug. 22nd 16h 45m	13	54 15.5	Sinzyō	Katō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 22nd 15h 55m	*0.27925	431.15	29°.6 C	6.0069 s	29°.6 C	—	—	—	Katō	Sinzyō
,, ,, 16 13	*0.27924	431.29	29.2	6.0059	29.2	—	—	—	Sinzyō	Katō
Mean	0.27925									

(2) (舊城大手門内竹籔)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 23rd 11h 24m	13	54° 12.1	Katō	Katō

Date and Hour (Mean Local Time)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 23rd 10h 52m	*0.27970	430.29	32°.4 C	6.0080 s	32.4 C	—	—	—	Katō	Katō

192. ADIGASAWA.

Wrestling ground (鰺ヶ澤神社角力場)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	24th	12h	32.9m	5°	37′	14″	Tanakadate	Katō
"	"	13	57.1	"	37	8	"	"
"	"	14	21.3	"	37	9	"	Tanakadate
"	"	15	27.2	"	36	4	"	Sinzyō
"	"	16	21.1	"	34	39	Katō	"
"	"	17	23.0	"	34	0	"	Tanakadate
"	"	18	28.4	"	34	8	Sinzyō	"
"	"	19	51.3	"	34	8	"	Sinzyō
"	"	22	4.9	"	34	40	"	"
"	"	23	14.8	"	34	14	"	"
"	25th	1	32.7	"	33	56	"	"
"	"	4	11.4	"	33	33	"	"
"	"	6	52.3	"	34	44	"	"
"	"	8	1.99	"	34	33	Tanakadate	Katō
"	"	9	16.7	"	33	43	"	"
"	"	10	46.2	"	37	11	"	Tanakadate
"	"	11	44.2	"	38	6	"	"
"	"	12	23.2	"	37	54	"	Sinzyō
Mean				5°	34′	30″		

$\delta = 5°\ 34'.50$

Reduction to 1895.0 = −1.63

" " sea level = 0.00

$\delta = 5°\ 32'.9$

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	24th	14h	50m	13	54°	45′.2	Katō	Tanakadate
"	"	19	11	13	"	46.8	Tanakadate	Katō
"	25th	10	10	11	"	46.5	"	Tanakadate
Mean					54	46′.2		

$\theta = 54\ 46'.2$

Reduction to 1895.0 = 1.29

" " sea level = 0.00

$\theta = 54\ 47'.5$

HORIZONTAL INTENSITY (*H*)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 24th 13h 34m	0.27790	430.49	29°.6C	6s.0253	29°.4C	6°41′12″.5	15 10′46″.3	29°.8C	Sinzyō, Tanakadate	Tanakadate, Sinzyō
" " 18 3	0.27820	430.53	28.7	6.0239	29.3	6 41 58.8	15 12 23.8	28.1	Tanakakate	Katō
" 25th 7 51	0.27701	431.50	24.7	6.0277	24.5	6 43 28.8	15 15 50.6	24.9	Katō, Tanakadate	Tanakadate, Katō
" " 8 32	0.27739	431.83	25.4	6.0232	26.0	6 43 28.8	15 15 50.6	24.9	Katō, Tanakadate	Tanakadate, Katō
Mean	0.27763									

H = 0.27763

Reduction to 1895.0 = −388

" " sea level = 00

H = 0.27760

Adigasawa Syuttyō (鰺ヶ澤出張)

Observations of the North Party, 1895.

(1) (本町一丁目後方山上ノ松原)

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	21th	8h	41m	13	54	13′.7	Sinzyō	Katō

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 24th 8h 15m	*0.27900	430.70	28°.7C	s 6.0124	28°.7C	—	—	—	Tanakadate	Katō

(2) **Maitomura** (舞戸村字富田海岸)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 24th 10h 21m	13	54 47′.7	Sinzyō	Katō

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 24th 9h 54m	*0.27841	430.21	30°.1C	s 6.0224	30°.1C	—	—	—	Tanakadate	Katō

193. IPPONGI.

DECLINATION (δ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 26th 19h 49.8m	5° 42′ 0″	Tanakadate	Sinzyō
,, ,, 20 37.5	,, 41 43	,,	,,
,, ,, 21 56.2	,, 41 46	Katō	Katō
,, ,, 22 48.9	,, 41 49	,,	,,
,, 27th 0 33.0	,, 41 35	,,	,,
,, ,, 2 44.6	,, 40 29	,,	,,
,, ,, 4 20.7	,, 39 58	,,	,,
,, ,, 5 51.6	,, 38 59	,,	,,
,, ,, 7 10.0	,, 38 35	,,	,,
,, ,, 7 50.4	,, 37 49	Sinzyō	Tanakadate
,, ,, 9 7.5	,, 38 28	,,	,,
,, ,, 10 20.9	,, 41 19	Tanakadate	Sinzyō
,, ,, 11 22.3	,, 43 59	,,	,,
,, ,, 12 33.3	,, 45 47	,,	,,
,, ,, 13 52.6	,, 45 17	Katō	,,
,, ,, 14 44.6	,, 44 41	,,	Katō
,, ,, 16 26.7	,, 43 5	Sinzyō	,,
,, ,, 17 28.7	,, 41 59	Katō	Sinzyō
,, ,, 19 21.8	,, 42 2	Tanakadate	Katō
,, ,, 20 34.5	,, 41 37	,,	,,
Mean	5° 41′ 38″		

$\delta = 5°\ 41'.63$
Reduction to 1895.0 = -1.71
,, ,, sea level = 0.00
$\delta = 5°\ 39'.9$

DIP (θ)
Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 27th 9h 54m	13	55 16′.8	Sinzyō	Tanakadate
,, ,, 12 6	13	,, 16.7	Tanakadate	,,
,, ,, 18 41	14	,, 16.3	Katō	,,
Mean		55 16′.6		

$\theta = 55\ 16'.6$
Reduction to 1895.0 = 1.37
,, ,, sea level = 0.00
$\theta = 55\ 18.0$

HORIZONTAL INTENSITY (*H*)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 27th 8h 36m	0.27524	432.08	24°.7C	6.0440	24°.9C	6°46′56″.3	15°24′ 5″.6	24°.5C	Tanakadate	Sinzyō
" " 13 28	0.27526	431.39	27.0	6.0490	27.3	6 46 6.3	15 21 58.8	26.7	{ Sinzyō Katō	{ Katō Sinzyō
" " 20 8	0.27532	432.56	21.6	6.0400	21.9	6 47 19.4	15 24 55.0	21.4	{ " Tanakadate	{ Tanakadate Katō
Mean	0.27527									

$H =$ 0.27527
Reduction to 1895.0 = −293
" " sea level = 00
$H =$ 0.27524

Ippongi Syuttyō (一 木 木 出 張)

Observations of the North Party, 1895.

Imabetu Hatiman (今別八幡社前)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 27th 14h 34m	13	55° 13′.0	Sinzyō	Tanakadate

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 27th 15h 1m	*0.27543	431.64	25°.5C	s 6.0444	25°.5C	—	—	—	Tanakadate	{ Sinzyō "

194. ŌMA.

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time)	δ	Observer	Recorder
Aug. 28th 20h 19.0m	6° 22′ 31″	Sinzyō	Katō
" " 21 56.5	" 22 18	"	"
" " 22 4.1	" 22 37	"	"
" 29th 0 9.1	" 22 14	"	"
" " 2 9.3	" 21 47	"	"
" " 4 48.1	" 20 55	Tanakadate	Tanakadate
" " 5 44.7	" 19 47	"	"
" " 7 4.5	" 19 10	"	"
" " 8 15.7	" 19 47	Katō	Sinzyō
" " 9 26.0	" 21 58	"	"
" " 10 30.8	" 24 44	"	Katō
" " 11 25.8	" 25 50	"	"
" " 12 6.0	" 25 39	"	"
" " 13 36.0	" 24 45	Tanakadate	Sinzyō
" " 14 49.6	" 23 29	"	Tanakadate
" " 15 15.6	" 22 59	"	Katō
" " 17 24.9	" 22 24	Katō	Tanakadate
" " 18 38.6	" 22 46	"	"
" " 20 31.0	" 23 1	"	"
Mean	6° 22′ 21″		

$\delta = 6°$ 22′.35
Reduction to 1895.0 = −1.75
" " sea level = 0.00
$\delta = 6°$ 20′.6

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 29th 9h 0m	13	55° 28′.8	Sinzyō	Katō
" " 14 18	13	" 25.4	Tanakadate	Sinzyō
" " 19 42	13	" 26.4	Katō	Tanakadate
Mean		55° 26′.9		

θ = 55° 26′.9
Reduction to 1895.0 = 1.38
" " sea level = 0.00
θ = 55° 28′.3

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 29th 7h 49m	0.27055	432.56	22°.1C	s 6.0928	22°.3C	6°54′21″.3	15°41′ 0″.6	22°.0C	Katō Sinzyō	Sinyzō Katō
" " 13 8	0.27112	432.12	23.0	6.0907	23.6	6 53 23.8	15 39 6.2	22.5	Tanakadate Katō	" Tanakadate
" " 18 10	0.27110	432.62	22.4	6.0860	22.5	6 53 33.1	15 39 11.3	22.3	" Tanakadate	" Katō
Mean	0.27092									

H = 0.27092
Reduction to 1895.0 = −260
" " sea level = 60
H = 0.27089

Ōma Syuttyō (大 間 出 張)

Observations of the North Party, 1895.

(1)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 29th 12h 1m	13	55° 6′.2	Sinzyō	Sinzyō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 29th 11h 12m	*0.27346	432.40	22°.6C	s 6.0609	22°.6C	—	—	—	Sinzyō	Sinzyō
" " 11 26	*0.27303	432.45	22.5	6.0655	22.5	—	—	—	"	"
Mean	0.27325									

(2) Ōma Zizōdō (大 間 地 藏 堂)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 29th 15h 38m	13	55° 32′.2	Katō	Katō

Date and Hour (Mean Local Time)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 29th 15h 7m	*0.27085	432.51	22°.3C	s 6.0893	22°.3C	—	—	—	Sinzyō	Katō

195. TANABU.

(下北郡御料地大字田名部字内田四十二號ノ一)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 31st 1h 4.0m	6° 13′ 31″	Sinzyō	Sinzyō
" " 1 16.8	" 13 44	"	"
" " 2 58.7	" 12 4	"	"
" " 5 49.3	" 11 11	"	"
" " 6 50.9	" 10 36	"	"
" " 8 27.6	" 10 50	Tanakadate	Katō
" " 9 13.9	" 13 6	Katō	Tanakadate
" " 10 45.1	" 15 29	Tanakadate	Katō
" " 11 48.2	" 16 27	"	"
" " 13 12.0	" 15 42	"	Sinzyō
" " 14 37.2	" 16 55	"	"
" " 15 26.2	" 16 29	"	Tanakadate
" " 17 23.3	" 14 42	"	"
" " 18 16.0	" 14 37	"	Sinzyō
" " 19 30.7	" 14 19	"	"
" " 21 4.0	" 14 11	"	"
" " 22 48.4	" 13 52	"	"
Sept. 1st 1 48.5	" 13 1	"	"
" " 5 40.2	" 11 24	"	"
Mean	6° 13′ 55″		

δ = 6° 13′.92
Reduction to 1895.0 = −1.63
" " sea level = 0.00
δ = 6° 12′.3

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 31st 9h 12m	13	55 8.4	Katō	Tanakadate
" " 14 14	13	" 6.5	Tanakadate	Sinzyō
" " 20 25	13	" 8.8	Sinzyō	"
Mean		55 7.9		

θ = 55° 7′.9
Reduction to 1895.0 = 1.19
" " sea level = 0.00
θ = 55° 9′.1

HORIZONTAL INTENSITY (*H*)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 31st 8h 3m	0.27539	433.30	21.5C	s 6.0331	21.4C	6°47′29″.4	15°24′51″.9	21.6C	Tanakadate, Katō	Katō, Tanakadate
" " 12 46	0.27535	431.03	25.7	6.0497	25.6	6 45 33.8	15 20 46.2	25.7	", Tanakadate	", Sinzyō
" " 19 3	0.27551	432.65	21.0	6.0380	21.6	6 47 10.0	15 24 25.0	20.5	"	"
Mean	0.27542									

H = 0.27542
Reduction to 1895.0 = −202
" " sea level = 00
H = 0.27540

Tanabu Syuttyō (田名部出張)

Observations of the North Party, 1895.

(1) (内田四十二號ノ一)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 31st 16h 55m	13	55 21.4	Sinzyō	Sinzyō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_n	Observer	Recorder
Aug. 31st 15h 52m	*0.27450	431.41	26.5 C	s 6.0564	26.5 C	—	—	—	Sinzyō	Sinzyō
,, ,, 16 8	*0.27394	431.51	26.2	6.0620	26.2	—	—	—	,,	,,
Mean	0.27422									

(2) (内田四拾二號ノ一)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer.	Recorder
Sept. 1st 8h 39m	13	55 11′.8	Tanakadate	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_n	Observer	Recorder
Sept. 1st 6h 41m	*0.27438	432.66	22.8 C	s 6.0489	22.8 C		—		Sinzyō	Sinzyō

196. MAKADO.

Aza Toriitai (字 鳥 居 平)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 2nd 14h 23.2m	5 55′ 34″	Sinzyō	Sinzyō
,, ,, 15 14.5	,, 54 48	,,	,,
,, ,, 16 40.2	,, 53 7	,,	,,
,, ,, 17 39.3	,, 53 2	,,	Tanakadate
,, ,, 19 0.5	,, 53 23	,,	,,
,, ,, 20 28.8	,, 53 34	Katō	Katō
,, ,, 21 39.2	,, 53 29	,,	,,
,, 3rd 0 37.9	,, 53 1	,,	,,
,, ,, 2 52.6	,, 52 23	,,	,,
,, ,, 5 11.9	,, 51 55	,,	,,
,, ,, 6 47.3	,, 49 18	,,	,,
,, ,, 8 13.3	,, 49 48	Sinzyō	Sinzyō
,, ,, 9 38.3	,, 52 18	,,	,,
,, ,, 10 23.9	,, 53 57	,,	,,
,, ,, 11 28.3	,, 55 12	,,	,,
,, ,, 12 32.9	,, 56 35	Katō	Katō
,, ,, 13 35.5	,, 57 1	,,	Sinzyō
,, ,, 14 22.2	,, 56 41	Sinzyō	Katō
,, ,, 15 3.3	,, 55 54	Katō	Sinzyō
Mean	5 53′ 13″		

$\delta = 5$ 53′.22

Reduction to 1895.0 = −1.60

,, ,, sea level = −0.01

$\delta = 5$ 51′.6

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 2nd 9h 6m	13	54 42′.6	Tanakadate	Katō
,, ,, 19 49	13	,, 40.4	Katō	,,
,, 3rd 9 5	—	,, 43.2	Sinzyō	Sinzyō
Mean		54 42′.1		

$\theta = 54°$ 42′.1

Reduction to 1895.0 = 1.14

,, ,, sea level = 0.01

$\delta = 54$ 43′.3

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 2nd 9th 53m	*0.27699	431.94	23°.9C	s 6.0253	23°.9C	—	—	—	Katō	Tanakadate
" " 10 3	*0.27663	431.79	24.3	6.0303	24.3	—	—	—	"	"
" " 18 33	0.27705	432.51	21.5	6.0211	21.8	6 44 42.5	15 18 52.5	21.3	Tanakadate Sinzyō	Sinzyō Tanakadate
" 3rd 7 51	0.27697	433.39	20.6	6.0159	20.9	6 45 27.5	15 20 15.0	20.4	" Tanakadate	" Sinzyō
" " 13 15	0.27698	430.96	26.8	6.0341	27.5	6 43 23.8	15 15 50.0	26.2	Sinzyō Katō	Katō Sinzyō
Mean	0.27692									

	$H=$	0.27692
Reduction to	1895.0$=$	−211
" "	sea level$=$	140
	$H=$	0.27691

Makado Syuttyō (馬 門 出 張)

Observations of the North Party, 1895.

(1) Hurukawa coast (野邊地古川海岸)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 2nd 11h 30m	13	54 34′.8	Tanakadate "	Katō "

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 2nd 11h 57m	*0.27734	431.90	24.0C	s 6.0217	24.0C	—	—	—	Katō	Tanakadate

(2) Toriitai (鳥 居 平)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 2nd 14h 23m	13	54 37′.5	Tanakadate "	Katō "

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 2nd 12h 44m	*0.27705	431.38	25.4C	s 6.0287	25°.4C	—	—	—	Katō	Tanakadate

(3) Siraiwa (野邊地字白岩河原)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 2nd 16h 39m	13	54 27′.8	Tanakadate	Katō

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 2nd 16h 3m	*0.27699	432.17	23.3C	s 6.0237	23°.3C	—	—	—	Katō	Tanakadate

(4) Toriitai (字鳥居平海岸)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 3rd 12h 11m	13	54 38′.7	Sinzyō	Sinzyō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. tv	Mean Deflections φ1	φ2	Temp. tD	Observer	Recorder
Sept. 3rd 10h 57m	*0.27668	430.06	28.8C	s 6.0421	28.8C	—		—	Sinzyō	Sinzyō
,, ,, 11 12	*0.27601	430.04	28.8	6.0431	28.8	—		—	,,	,,
Mean	0.27635									

(5) **Syōkonsya** (招魂社前)

Date and Hour (Mean Local Time)	Needle No.	θ	Observer	Recorder
Sept. 3rd 16h 6m	13	54 31.8	Sinzyō	Sinzyō

(6) **Station, 1887** (本町仙臺屋安田彦兵衛方ノツト觀測點)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 3rd 17h 11m	13	54 32.3	Sinzyō	Katō

Date and Hour (Mean Local Time.	H	M	Mean Temp.	Time of 1-Vibn.	Temp. tv	Mean Deflections φ1	φ2	Temp. tD	Observer	Recorder
Sept. 3rd 17h 11m	*0.27736	431.51	25.0C	s 6.0244	25.0C	—	—	—	Katō	Sinzyō

197. AOMORI.

Okidate (Obama) (瀧内村大字沖舘字小濱五十三番)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time)				δ			Observer	Recorder
Sept.	3rd	22h	49.7m	5	29′	52″	Sinzyō	Tanakadate
,,	,,	23	52.9	,,	29	35	,,	Sinzyō
,,	4th	0	35.4	,,	29	10	,,	,,
,,	,,	2	37.9	,,	28	8	,,	,,
,,	,,	5	1.0	,,	28	19	,,	,,
,,	,,	5	41.6	,,	27	25	,,	,,
,,	,,	6	31.3	,,	25	57	,,	,,
,,	,,	7	48.5	,,	25	14	Tanakadate	Tanakadate
,,	,,	8	30.5	,,	25	31	,,	,,
,,	,,	9	42.5	,,	27	24	,,	,,
,,	,,	10	54.4	,,	29	37	,,	,,
,,	,,	11	37.7	,,	31	39	,,	,,
,,	,,	12	24.1	,,	33	11	,,	,,
,,	,,	13	0.4	,,	34	12	,,	Sinzyō
,,	,,	14	13.8	,,	33	53	,,	,,
,,	,,	15	15.4	,,	32	28	Sinzyō	,,
,,	,,	16	31.3	,,	32	16	,,	,,
,,	,,	17	29.1	,,	31	27	Tanakadate	Tanakadate
,,	,,	18	9.9	,,	32	7	,,	Sinzyō
,,	,,	19	20.9	,,	31	39	,,	,,
,,	,,	20	49.9	,,	30	28	Sinzyō	,,
,,	,,	21	37.3	,,	30	32	Tanakadate	Tanakadate
,,	,,	22	53.0	,,	30	28	,,	,,
,,	5th	0	31.6	,,	29	20	,,	,,
,,	,,	4	58.4	,,	30	47	,,	,,
				To be continued				

Continued

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	5th	5h	29.8m	5	31′	2″	Tanakadate	Tanakadate
,,	,,	7	17.3	,,	30	22	,,	,,
,,	,,	9	1.3	,,	32	20	Sinzyō	Sinzyō
,,	,,	9	38.4	,,	33	57	,,	,,
,,	,,	11	5.4	,,	36	1	,,	,,
,,	,,	12	39.1	,,	37	50	,,	Tanakadate
,,	,,	14	11.6	,,	35	53	Tanakadate	Sinzyō
,,	,,	16	9.7	,,	33	30	,,	,,
,,	,,	18	4.7	,,	27	29	,,	Tanakadate
,,	,,	18	57.6	,,	29	52	,,	,,
Mean				5	29′	58″		

$\delta = 5° \quad 29'.97$

Reduction to 1895.0 = -1.66

,, ,, sea level = 0.00

$\delta = 5° \quad 28'.3$

DIP (θ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	4th	14h	52m	13	54	52.5	Tanakadate	Sinzyō
,,	,,	20	13	13	,,	56.6	Sinzyō	,,
,,	5th	8	16	14	,,	54.9	,,	,,
,,	,,	9	58	13	,,	56.4	,,	,,
,,	,,	11	50	13	,,	59.1	,,	,,
,,	,,	15	38	13	,,	55.3	Tanakadate	,,
Mean					54	55.8		

$\theta = 54° \quad 55'.8$

Reduction to 1895.0 = 1.22

,, ,, sea level = 0.00

$\theta = 54° \quad 57'.0$

HORIZONTAL INTENSITY (H)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 4th 7h 22m	0.27745	432.30	23.6C	s 6.0164	23.1C	6 43′26″.2	15 15′39″.4	24.1C	Tanakadate Sinzyō	Sinzyō Tanakadate
,, ,, 13 51	0.27739	429.19	31.2	6.0393	31.5	6 41 13.8	15 10 54.4	30.9	,, Tanakadate	,, Sinzyō
,, ,, 18 56	0.27657	431.45	25.6	6.0339	25.8	6 44 11.2	15 17 30.0	25.5	,, Sinzyō	,, Tanakadate
Mean	0.27714									

$H = 0.27714$

Reduction to 1895.0 = -281

,, ,, sea level = 0

$H = 0.27711$

Aomori Syuttyō (青森出張)

Observations of the North Party, 1895.

(I) **Near Okidate-inari** (沖舘稻荷社近傍)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 4th 17h 46m	13	54 58.8	Sinzyō	Sinzyō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 5th 18h 21m	*0.27650	432.16	24.0C	s 6.0294	24.0C	—	—	—	Sinzyō	Tanakadate

(2) Near the Road (蟹田街道附近)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 5th 17h 25m	13	54 55.8	Tanakadate	Sinzyō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Sept. 5th 16h 56m	*0.27679	431.49	25.8C	s 6.0308	25.8C	—	—	—	Sinzyō	Tanakadate

(3) Easte bank of the River Tutumi (堤川東岸)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 6th 8h 32m	13	74 49.2	Tanakadate	Sinzyō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp t_D	Observer	Recorder
Sept. 6th 7h 52m	*0.27782	431.76	25.1C	s 6.0176	25.1C	—	—	—	Sinzyō	Tanakadate
″ ″ 8 5	*0.27792	431.63	25.4	6.0175	25.4	—	—	—	Tanakadate	Sinzyō
Mean	0.27787									

198. FUKAYA.

Tenrikyōkwai (天理教會構内)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
June. 28th 9h 18.3m	4 36′ 47″	Imamura	Tamaru
″ ″ 9 43.5	″ 31 28	″	″
″ ″ 10 40.0	″ 34 6	″	″
″ ″ 11 34.0	″ 36 25	″	Nakamura
″ ″ 12 26.3	″ 39 6	″	Tamaru
″ ″ 13 25.1	″ 40 26	Nakamura	Nakamura
″ ″ 14 19.8	″ 40 31	Imamura	″
″ ″ 15 15.6	″ 39 58	Tamaru	Tamaru Nakamura
″ ″ 16 1.9	″ 38 28	Imamura	Imamura
″ ″ 17 2.8	″ 33 13	Nakamura	Nakamura
″ ″ 17 51.8	″ 35 8	″	″
″ ″ 18 57.3	″ 34 28	″	″
″ ″ 19 51.6	″ 35 34	″	″
″ ″ 22 5.8	″ 35 34	″ Imamura	Tamaru
″ ″ 22 57.7	″ 35 32	Nakamura	Imamura
″ 29th 2 30.3	″ 35 21	Tamaru	Tamaru
″ ″ 4 57.5	″ 32 11	″	″
″ ″ 5 44.6	″ 31 31	″	Imamura
″ ″ 6 50.3	″ 29 21	Nakamura	Nakamura
″ ″ 7 34.3	″ 30 15	″	″
″ ″ 8 48.9	″ 31 45	Tamaru	Imamuru
Mean	4° 35′ 7″		

δ = 4° 35.12

Reduction to 1895.0 = −0.51

″ ″ sea level = 0.00

δ = 4° 34.6

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder.
June 28th 11h 18m	1	49° 58′.1	Imamura	Tamaru
,, ,, 14 43	1	,, 52.9	Nakamura	Imamura
,, ,, 18 7	1	,, 51.6	Imamura	Nakamura
,, ,, 21 21	1	,, 57.1	Nakamura	,,
,, 29th 8 0	1	,, 52.2	,,	,,
Mean		49° 54′.4		

θ = 49° 54′.4
Reduction to 1895.0 = −0.97
,, ,, sea level = 0.00
θ = 49° 53′.4

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
June 28th 10h 20m	0.29576	435.29	25°.5C	s 5.8538	25°.3C	6°20′22″.5	14 28′ 3″.1	25°.7C	Imamura	Tamaru
,, ,, 14 2	0.29584	434.15	29.0	5.8651	29.3	6 19 30.0	14 26 16.3	28.7	Nakamura	Imamura
,, ,, 17 30	0.2 530	434.34	27.4	5.8668	28.0	6 20 3.1	14 27 26.2	26.9	Imamura	Nakamura
,, ,, 22 37	0.29576	436.30	22.5	6.8493	22.2	6 21 19.4	14 30 15.6	22.7	Nakamura	Imamura
,, 29th 8 33	0.2 621	437.62	18.5	5.8356	18.1	6 22 6.9	14 32 25.0	18.9	Imamura	Nakamura
Mean	0.29583									

H = 0.29583
Reduction to 1895.0 = −282
,, ,, sea level = 51
H = 0.29581

199. SAKURA.

Parade graund (陸軍練兵場)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 2nd 16h 45.6m	1 22′ 55″	Tamaru	Imamura
,, ,, 17 57.0	,, 21 12	Imamura	,,
,, ,, 19 25.3	,, 21 9	,,	,,
,, ,, 20 47.1	,, 21 54	Tamaru	Tamaru
,, ,, 22 13.3	,, 21 11	Nakamura	Imamura
,, ,, 23 12.4	,, 20 55	Tamaru	Tamaru
,, 3rd 4 36.8	,, 19 47	,,	,,
,, ,, 5 45.2	,, 20 5	,,	,,
,, ,, 8 2.8	,, 18 29	,,	,,
,, ,, 9 22.0	,, 18 58	Nakamura	Imamura
,, ,, 10 6.4	,, 21 20	Imamura	Nakamura
,, ,, 11 4.1	,, 23 42	Nakamura	Imamura
,, ,, 12 4.0	,, 24 43	,,	,,
,, ,, 13 18.5	,, 25 22	,,	Nakamura
,, ,, 13 53.0	,, 25 47	Imamura	Imamura
,, ,, 14 55.3	,, 25 8	,,	Nakamura
,, ,, 16 2.1	,, 23 25	,,	,,
,, ,, 17 9.1	,, 22 13	,,	Imamura
Mean	1° 21′ 38″		

δ = 1° 21′.63
Reduction to 1895.0 = −0.41
,, ,, sea level = 0.00
δ = 1 21′.2

DIP (θ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 2nd 17h 41m	1	49° 9′.5	Nakamura	Imamura
,, ,, 21 32	2	,, 6.1	Tamaru	,,
,, 3rd 8 43	1	,, 8.8	Imamura	Nakamura / Imamura
,, ,, 15 29	1	,, 9.8	Nakamura	,,
Mean		49 8′.3		

θ = 49 8′.6
Reduction to 1895.0 = −0.50
,, ,, sea level = 0.00
θ = 49° 8′.1

HORIZONTAL INTENSITY (H)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 2nd 22h 43m	0.29761	435.59	20.4C	5.8339 s	20.5C	6°19′33″.0	14°26′29″.0	20.4C	Nakamura	Imamura
,, 3rd 10 40	0.29723	434.61	23.3	5.8475	23.4	6 17 56.9	14 22 23.1	23.2	Imamura	Nakamura
,, ,, 11 17	0.29729	434.31	26.2	5.8487	26.2	6 17 43.8	14 22 7.5	23.2	Nakamura	Imamura
,, ,, 19 44	0.29739	435.62	23.6	5.8383	23.4	6 18 33.1	14 23 43.8	23.8	Imamura	Nakamura
Mean	0.29738									

H = 0.29738
Reduction to 1895.0 = −175
,, ,, sea level = 38
H = 0.29737

200. SAWARA.

Araku Hudō (アラクノ不動内)

DECLINATION (δ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 4th 22h 23.1m	4° 22′ 58″	Imamura	Imamura
,, 5th 2 51.8	,, 23 58	,,	,,
,, ,, 4 45.0	,, 23 34	,,	,,
,, ,, 6 26.9	,, 21 6	,,	,,
,, ,, 7 33.0	,, 21 4	Tamaru	Tamaru
,, ,, 9 42.8	,, 18 58	Nakamura	Imamura
,, ,, 11 49.9	,, 28 47	,,	Nakamura
,, ,, 12 34.4	,, 29 42	Tamaru	,,
,, ,, 14 1.5	,, 30 34	Nakamura	Tamaru
,, ,, 15 3.6	,, 28 54	,,	Nakamura
,, ,, 16 12.7	,, 26 46	Imamura	,,
,, ,, 16 33.5	,, 25 21	,,	,,
,, ,, 16 47.6	,, 25 26	,,	,,
,, ,, 17 0.0	,, 25 39	,,	,,
,, ,, 18 5.0	,, 24 24	Nakamura	,,
,, ,, 19 13.0	,, 24 16	,,	,,
,, ,, 20 4.8	,, 24 37	Tamaru	Tamaru
,, ,, 22 14.4	,, 24 33	Nakamura	,,
,, ,, 23 0.8	,, 24 31	,,	Nakamura
,, 6th 3 12.2	,, 23 27	Tamaru	Tamaru
,, ,, 6 9.1	,, 20 48	,,	,,
,, ,, 6 52.8	,, 19 58	,,	,,
,, ,, 7 59.6	,, 1[illegible] 55	,,	,,
,, ,, 9 2.6	,, 20 9	Nakamura	Nakamura
Mean	4 24′ 32″		

δ = 4° 24′.53
Reduction to 1895.0 = −0.40
,, ,, sea level = 0.00
δ = 4 24′.1

DIP (θ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	5th	7h	15m	—	49	15.3	Imamura	Imamura
„	„	16	13	—	„	17.8	Tamaru	Nakamura
„	„	18	56	—	„	17.4	Nakamura	„
„	„	22	39	—	„	17.0	„	{ Tamaru Nakamura
„	6th	9	3		„	19.1	„	„
Mean					49	17.3		

θ = 49° 17.3
Reduction to 1895.0 = −0.61
„ „ sea level = 0.00
θ = 49° 16.7

HORIZONTAL INTENSITY (H)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
							s						
July	4th	23h	13m	0.29682	434.30	23.7 C	5.8528	23.5 C	6°18′ 5.0	14°22′33.9	24.0 C	Nakamura	Tamaru
„	5th	14	43	0.29689	433.90	27.3	5.8564	27.7	6 17 58.1	14 22 35.2	23.9	Tamaru	Nakamura
„	„	17	27	0.29639	433.63	27.0	5.8628	27.2	6 18 13.8	14 23 8.1	25.8	Imamura	„
„	„	21	54	0.29657	434.87	24.0	5.8531	24.6	6 19 13.8	14 25 20.6	23.4	Tamaru	„
„	6th	9	58	0.29645	433.81	28.7	5.8311	29.0	6 18 4.0	14 22 22.0	28.5	Nakamura	Tamaru
Mean				0.29662									

H = 0.29662
Reduction to 1895.0 = −137
„ „ sea level = 13
H = 0.29661

201. TYÔSI.

Wakamiya Hatiman (若宮八幡宮)

DECLINATION (δ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	7th	1h	14.8m	4°	13′	33″	Nakamura	Nakamura
„	„	4	53.0	„	11	20	„	„
„	„	5	8.4	„	11	4	„	„
„	„	6	17.8	„	10	33	„	„
„	„	7	4.5	„	9	49	Tamaru	Tamaru
„	„	8	1.1	„	10	10	„	„
„	„	9	23.3	„	12	0	„	Nakamura
„	„	10	30.2	„	16	15	„	„
„	„	11	17.9	„	16	45	Nakamura	„
„	„	11	52.1	„	17	51	Tamaru	Tamaru
„	„	13	23.0	„	18	51	Nakamura	„
„	„	14	26.1	„	18	22	Imamura	Imamura
„	„	15	29.7	„	16	19	„	„
„	„	16	23.3	„	14	46	„	„
„	„	17	35.6	„	13	11	„	Nakamura
„	„	18	46.8	„	12	40	Tamaru	Imamura
„	„	21	16.0	„	13	25	Nakamura	Tamaru
„	„	22	35.4	„	13	15	„	Imamura
„	„	23	34.0	„	13	26	„	Nakamura
Mean				4°	13′	17″		

δ = 4° 13.78
Reduction to 1895.0 = −0.34
„ „ sea level = 0.00
δ = 4 13.4

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	7th	5h	58m	—	49°	1.4	Nakamura	Nakamura
,,	,,	9	58	—	48	52.9	Tamaru	Tamaru
,,	,,	16	1	1	,,	56.0	Imamura	Imamura
,,	,,	18	4	1	,,	57.3	,,	,,
,,	,,	23	14	1	,,	55.0	Nakamura	Nakamura
Mean					48°	56.5		

$\theta = 48^\circ \quad 56'.5$

Reduction to 1895.0 = −0.77

,, ,, sea level = 0.00

$\theta = 48^\circ \quad 55'.7$

HORIZONTAL INTENSITY (*H*)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	7th	9h	1m	0.29733	433.50	28.3C	s 5.8518	27.5C	6°16′39″.0	14 19′36″.0	29.1C	Nakamura	Tamaru
,,	,,	13	4	0.29777	432.52	31.0	5.8559	30.9	6 15 14.4	14 16 5.6	31.1	Tamaru	Nakamura
,,	,,	15	7	0.29761	433.40	28.2	5.8520	28.3	6 16 25.0	14 18 55.6	28.1	Imamura	,,
,,	,,	17	17	0.29744	433.43	27.5	5.8544	28.1	6 16 43.1	14 19 52.5	27.0	Tamaru	Imamura
,,	,,	23	14	0.29771	434.45	25.1	5.8440	25.4	6 17 17.5	14 20 54.4	24.9	{ Imamura Tamaru	{ ,, Nakamura
Mean				0.29757									

H = 0.29757

Reduction to 1895.0 = −092

,, ,, sea level = 0

H = 0.29756

202. ITINOMIYA.

North Bank of the River Itinomiya (一宮川北岸芝地)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	9th	12h	1.3m	4°	18′	16″	Nakamura	Nakamura
,,	,,	12	29.6	,,	19	22	,,	Tamaru
,,	,,	13	24.1	,,	20	36	Tamaru	Nakamura
,,	,,	14	17.8	,,	20	18	Nakamura	,,
,,	,,	16	1.3	,,	18	0	,,	Tamaru
,,	,,	16	43.8	,,	17	15	,,	,,
,,	,,	17	51.4	,,	15	25	,,	,,
,,	,,	19	4.3	,,	15	20	Tamaru	,,
,,	,,	20	18.3	,,	15	26	Nakamura	,,
,,	,,	22	21.0	,,	15	16	Tamaru	Nakamura
,,	10th	0	7.0	,,	15	18	,,	Tamaru
,,	,,	5	41.6	,,	12	30	,,	,,
,,	,,	6	22.9	,,	10	51	,,	,,
,,	,,	6	45.9	,,	10	30	,,	,,
,,	,,	8	26.2	,,	9	17	Nakamura	Nakamura
,,	,,	9	40.6	,,	11	34	Tamaru	,,
,,	,,	10	55.5	,,	14	56	Nakamura	,,
Mean				4°	15′	5″		

$\delta = 4^\circ \quad 15'.08$

Reduction to 1895.0 = −0.34

,, ,, sea level = 0.00

$\delta = 4^\circ \quad 14'.7$

DIP (θ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time)	Needle No.	θ	Observer	Recorder
July 9th 4h 24m	—	48° 45'.1	Nakamura	Tamaru
,, ,, 20 16	—	,, 42.4	Tamaru	{ ,, Nakamura
,, 10th 7 54	—	,, 43.8	,,	{ Tamaru Nakamura
,, ,, 9 7	—	,, 48.8	Nakamura	,,
Mean		48° 45'.0		

$\theta = 48°\ 45'.0$
Reduction to 1895.0 = -0.78
,, ,, sea level = 0.00
$\theta = 48°\ 44'.2$

HORIZONTAL INTENSITY (H)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 9th 15h 45m	0.29768	433.44	23°.9 C	5.8524 s	27°.7 C	6 16' 31".2	14 19' 3".8	26.2 C	Tamaru	Nakamura
,, ,, 18 37	0.29768	435.17	22.1	5.8393	22.3	6 17 55.6	14 22 14.4	21.9	Nakamura	Tamaru
,, ,, 22 57	0.29772	435.55	20.8	5.8357	20.8	6 18 16.2	14 23 10.6	20.9	,,	,,
,, 10th 10 31	0.29744	435.23	22.3	5.8406	22.3	6 18 1.2	14 22 7.5	22.3	Tamaru	Nakamura
Mean	0.29763									

$H = 0.29763$
Reduction to 1895.0 = -140
,, ,, sea level = 0
$H = 0.29762$

203. MAEBARA.

Kamogawa Gakkō (鴨川學校)

DECLINATION (δ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 11th 19h 6.0m	4° 12' 35"	Nakamura	Nakamura
,, ,, 20 37.9	,, 12 24	Tamaru	Tamaru
,, 12th 4 4.3	,, 9 17	Nakamura	Nakamura
,, ,, 5 6.8	,, 8 36	,,	,,
,, ,, 6 19.7	,, 6 52	,,	,,
,, ,, 7 6.9	,, 5 34	Tamaru	Tamaru
,, ,, 8 38.8	,, 6 47	Nakamura	,,
,, ,, 10 20.0	,, 9 17	Tamaru	,,
,, ,, 11 53.7	,, 13 58	,,	Nakamura
,, ,, 13 42.0	,, 16 48	,,	,,
,, ,, 13 53.3	,, 16 39	,,	,,
,, ,, 15 27.8	,, 15 31	,,	,,
,, ,, 17 37.2	,, 11 52	Nakamura	,,
,, ,, 19 11.1	,, 10 57	Tamaru	{ ,, Tamaru
,, ,, 20 13.5	,, 11 26	Nakamura	,,
,, ,, 21 36.3	,, 11 24	,,	,,
,, 13th 1 11.2	,, 11 57	Tamaru	,,
,, ,, 3 16.2	,, 11 16	,,	,,
,, ,, 6 42.0	,, 7 45	,,	,,
,, ,, 8 22.5	,, 10 16	Nakamura	{ Nakamura Tamaru
Mean	4° 11' 24"		

$\delta = 4°\ 11'.40$
Reduction to 1865.0 = -0.33
,, ,, sea level = 0.00
$\delta = 4°\ 11'.1$

DIP (θ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	12th	8h	14m	1	48°	17.9	Tamaru	Nakamura
,,	,,	11	5	1	,,	17.3	Nakamura	Tamaru
,,	,,	18	28	1	,,	21.6	Tamaru	,,
,,	13th	10	31	1	,,	21.9	Nakamura	Nakamura
Mean					48°	19.7		

θ = 48° 19.7
Reduction to 1895.0 = −0.74
,, ,, sea level = 0.00
θ = 48° 19.0

HORIZONTAL INTENSITY (H)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	12th	9h	56m	0.29834	435.61	21.0C	5.8292	21.0C	6 17′15″6	14 20′25″0	21°0C	Tamaru	Nakamura
,,	,,	14	55	0.29875	435.28	22.2	5.8276	22.2	6 16 29.4	14 18 43.8	22.2	Nakamura	Tamaru
,,	,,	21	17	0.29889	435.35	20.9	5.8259	21.0	6 16 56.2	14 20 33.8	20.8	Tamaru	Nakamura
,,	13th	9	37	0.29806	434.03	25.5	5.8414	25.0	6 16 6.0	14 17 57.5	26.1	Nakamura	Tamaru
Mean				0.29851									

H = 0.29851
Reduction to 1895.0 = −184
,, ,, sea level = 0
H = 0.29849

204. KISARATU.

Kisaratu Aduma Zinsya (木更津町近郊. 吾妻神社境内)

DECLINATION (δ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	14th	13h	38.5m	4	23′	8″	Nakamura	Nakamura
,,	,,	14	15.9	,,	23	11	Tamaru	,,
,,	,,	15	25.4	,,	25	17	,,	,,
,,	,,	16	45.6	,,	20	18	Nakamura	Tamaru
,,	,,	17	47.8	,,	20	25	,,	,,
,,	,,	19	2.6	,,	17	50	,,	Nakamura
,,	,,	20	0.8	,,	18	14	,,	,,
,,	,,	23	10.8	,,	18	3	,,	,,
,,	15th	4	29.2	,,	16	29	,,	,,
,,	,,	5	34.8	,,	14	33	,,	,,
,,	,,	6	42.1	,,	14	6	,,	,,
,,	,,	7	34.8	,,	14	52	,,	,,
,,	,,	8	32.7	,,	16	9	Tamaru	Tamaru
,,	,,	9	51.0	,,	18	24	,,	Nakamura
,,	,,	11	18.4	,,	21	42	Nakamura	Tamaru
,,	,,	11	38.3	,,	22	1	,,	,,
,,	,,	12	52.1	,,	23	22	,,	,,
,,	,,	13	14.8	,,	23	55	,,	,,
,,	,,	13	33.7	,,	23	25	,,	,,
,,	,,	14	31.2	,,	24	21	,,	Nakamura
,,	,,	15	20.2	,,	23	14	,,	,,
,,	,,	16	30.4	,,	22	24	Tamaru	,,
Mean				4	18′	40″		

δ = 4° 18.67
Reduction to 1895.0 = −0.39
,, ,, sea level = 0.00
δ = 4° 18.3

DIP (θ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 14th 17h 20m	—	48° 42′.8	Tamaru	Nakamura
,, ,, 19 40	—	,, 44.9	Nakamura	,,
,, 15th 6 20	—	,, 39.1	,,	,,
,, ,, 12 28	1	,, 37.8	Tamaru	Tamaru
,, ,, 15 2	1	,, 35.9	Nakamura	Nakamura
Mean		48 40′.1		

θ = 48° 40′.1
Reduction to 1895.0 = −0.64
,, ,, sea level = 0.00
θ = 48° 39′.5

HORIZONTAL INTENSITY (H)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 14th 15h 5m	0.29830	433.47	28°.3C	s 5.8472	29°.4C	6°15′27″.5	14 15′55″.0	27.2C	Nakamura	Tamaru
,, ,, 18 42	0.29811	434.60	23.4	5.8413	24.6	6 17 24.4	14 21 22.5	22.2	Tamaru	Nakamura
,, ,, 22 41	0.29816	436.09	19.3	5.8277	19.3	6 18 4.4	14 22 31.3	19.3	Nakamura	Tamaru
,, 15th 11 0	0.29829	433.61	27.5	5.8437	27.5	6 15 39.4	14 16 58.8	27.4	Tamaru	Nakamura
,, ,, 14 7	0.29829	434.21	25.5	5.8399	25.7	6 16 7.5	14 17 53.8	25.4	Nakamura	Tamaru
Mean	0.29823									

H = 0.29823
Reduction to 1895.0 = −202
,, ,, sea level = 0
H = 0.29821

205. MITO.
Mito Middle School (中學校構內)

DECLINATION (δ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 20th 13h 58.4m	4 25′ 2″	Tamaru	Imamura
,, ,, 14 32.6	,, 24 26	,,	,,
,, ,, 16 3.1	,, 23 47	Imamura	Tamura
,, ,, 17 31.6	,, 22 46	Nakamura	Nakamura
,, ,, 18 33.8	,, 22 42	,,	Imamura
,, ,, 19 4.7	,, 23 34	Imamura	Tamaru
,, ,, 20 4.5	,, 23 22	,,	,,
,, ,, 20 56.9	,, 22 41	Nakamura	,,
,, ,, 21 57.6	,, 22 35	,,	Nakamura
,, ,, 23 29.3	,, 22 57	,,	,,
,, 21st 4 9.3	,, 20 23	,,	,,
,, ,, 5 52.6	,, 18 34	,,	,,
,, ,, 6 54.4	,, 18 12	,,	,,
,, ,, 8 49.5	,, 20 7	Imamura	Imamura
,, ,, 10 11.8	,, 24 53	Tamaru	Tamaru
,, ,, 11 8.7	,, 26 17	,,	,, Imamura
,, ,, 12 12.5	,, 27 24	Imamura	,,
,, ,, 13 14.7	,, 26 54	Nakamura	Nakamura
,, ,, 13 49.1	,, 25 50	,,	,,
Mean	4° 22′ 43″		

δ = 4° 22′.72
Reduction to 1895.0 = −0.51
,, ,, sea level = 0.00
δ = 4° 22′.2

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 20th 17h 0m	1	49° 50.′4	Nakamura	Nakamura / Imamura
,, ,, 20 33	1	,, 5.12	Imamura	,, / Tamaru
,, 21st 8 53	1	,, 47.2	Tamaru	,,
,, ,, 11 34	1	,, 53.2	Nakamura	Imamura
Mean		49° 50.′5		

$$\theta = 49° \ 50.'5$$
Reduction to 1895.0 = −0.50
,, ,, sea level = 0.00
$$\delta = 49° \ 50.'0$$

HORIZONTAL INTENSITY (*H*)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 20th 16h 26m	0.29497	433.95	24.°8C	s 5.8749	25.°1C	6°20′32.″5	14°28′40.″0	24.5C	Imamura	Tamaru
,, ,, 19 42	0.29454	433.72	24.0	5.8797	24.0	6 20 34.4	14 28 23.6	24.0	Tamaru	Imamura
,, ,, 21 30	0.29464	433.89	24.1	5.8777	24.1	6 20 41.3	14 28 47.5	24.1	Nakamura	,,
,, 21st 7 54	0.29463	433.52	24.9	5.8798	24.7	6 20 13.8	14 27 37.5	25.1	Tamaru	Nakamura
Mean	0.29470									

$$H = 0.29470$$
Reduction to 1895.0 = −159
,, ,, sea level = 13
$$H = 0.29469$$

206. UEDA.

Ueda Gakkō (植田學校)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 22nd 17h 40.1m	4° 29′ 35″	Nakamura	Tamaru
,, ,, 18 11.7	,, 29 11	Tamaru	Nakamura
,, ,, 19 18.3	,, 30 4	Nakamura	Tamaru
,, ,, 20 8.8	,, 30 4	Imamura	Imamura
,, ,, 21 16.9	,, 29 57	Tamaru	,,
,, ,, 22 13.9	,, 29 52	,,	Tamaru
,, 23rd 5 14.0	,, 27 18	,,	,,
,, ,, 5 48.0	,, 26 25	,,	,,
,, ,, 7 12.8	,, 24 59	,,	,,
,, ,, 8 35.3	,, 26 31	Nakamura	Imamura
,, ,, 9 33.1	,, 30 4	Imamura	Nakamura
,, ,, 10 27.5	,, 32 14	,,	,,
,, ,, 11 34.8	,, 34 2	Nakamura	,,
,, ,, 12 40.4	,, 35 7	Tamaru	Tamaru
,, ,, 13 33.6	,, 34 46	,,	,,
,, ,, 14 34.9	,, 33 16	Imamura	Imamura
,, ,, 15 44.4	,, 31 58	Tamaru	Tamaru
Mean	4° 30′ 12″		

$$\delta = 4° \ 30.'20$$
Reduction to 1895.0 = −0.55
,, ,, sea level = 0.00
$$\delta = 4° \ 29.'7$$

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 22nd 20h 45m	1	50° 23′.2	Imamura	Imamura
,, 23rd 6 39	1	,, 28.1	Tamaru	Tamaru
,, ,, 11 8	-	,, 23.5	Nakamura	Nakamura
,, ,, 15 13	1	,, 25.2	Tamaru	Imamura
Mean		50° 25′.0		

$\theta = 50°$ 25′.0

Reduction to 1895.0 = −0.45

,, ,, sea level = 0.0

$\theta = 50°$ 24′.5

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 22nd 18h 56m	0.29258	433.91	25°.0C	5.8986 s	25°.2C	6°23′30″.0	14°35′25″.6	24°.9C	Tamaru	Nakamura
,, ,, 21 46	0.29270	433.99	24.2	5.8964	24.1	6 23 31.3	14 35 41.3	24.2	Imamura	Tamaru
,, 23rd 10 3	0.29222	432.82	27.2	5.9095	27.2	6 22 54.4	14 33 58.8	27.1	Nakamura	Imamura
,, ,, 14 9	0.29282	433.05	27.5	5.9011	27.2	6 22 10.0	14 32 15.6	27.8	Imamura	Nakamura
Mean	0.29258									

$H =$ 0.29258

Reduction to 1895.0 = −111

,, ,, sea level = 0

$H =$ 0.29257

207. NAMIE.

Namie Gakkō (浪 江 學 校)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 24th 20h 42.1m	4° 22′ 15″	Nakamura	Nakamura
,, ,, 21 27.6	,, 23 9	Tamaru	,,
,, ,, 21 49.9	,, 23 13	,,	Imamura
,, ,, 22 50.1	,, 22 51	Nakamura	Nakamura
,, 25th 1 43.7	,, 21 51	,,	,,
,, ,, 5 10.8	,, 20 28	,,	,,
,, ,, 6 4.8	,, 18 58	,,	,,
,, ,, 7 11.5	,, 17 21	,,	,,
,, ,, 8 25.3	,, 18 8	Imamura	Tamaru
,, ,, 9 30.0	,, 20 16	Tamaru	,,
,, ,, 10 39.2	,, 22 11	Imamura	Imamura
,, ,, 11 45.9	,, 25 8	,,	,,
,, ,, 12 37.4	,, 26 25	Nakamura	Nakamura
,, ,, 13 35.0	,, 26 53	Imamura	Tamaru
,, ,, 15 20.3	,, 24 11	Nakamura	Imamura
,, ,, 15 55.8	,, 23 21	Imamura	,,
,, ,, 17 15.4	,, 21 43	Tamaru	Tamaru
,, ,, 17 44.7	,, 21 19	Nakamura	,,
,, ,, 18 54.3	,, 21 24	Tamaru	Nakamura
,, ,, 19 54.1	,, 21 36	Nakamura	,,
Mean	4° 22′ 7″		

$\delta = 4°$ 22′.12

Reduction to 1895.0 = −0.63

,, ,, sea level = 0.00

$\delta = 4°$ 21′.5

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 25th 6h 34m	—	50° 58.3	Nakamura	Nakamura
,, ,, 11 23	1	,, 58.5	Imamura	Imamura
,, ,, 16 28	1	,, 59.3	Tamaru	Tamaru
,, ,, 20 35	1	,, 57.1	Nakamura	Imamura
Mean		50° 58.3		

$\theta = 50°\ 58'.3$

Reduction to 1895.0 = -0.28

,, ,, sea level = 0.00

$\theta = 50°\ 58'.0$

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 24th 22h 30m	0.29328	433.79	24.8C	s 5.8918	24.7C	6 22′21″.2	14 32′40″.6	24.8C	Imamura	Nakamura
,, 25th 8 9	0.29331	434.25	23.5	5.8880	23.2	6 22 50.6	14 34 3.8	23.7	,,	Tamaru
,, ,, 15 0	0.29331	433.60	24.7	5.8932	24.7	6 22 15.6	14 32 34.4	24.6	Tamaru	Imamura
,, ,, 18 24	0.29327	434.23	23.7	5.8890	23.6	6 22 41.9	14 33 22.5	23.8	Nakamura	Tamaru
Mean	0.29329									

$H = 0.29329$

Reduction to 1895.0 = -112

,, ,, sea level = 0

$H = 0.29328$

208. WATARI.

Watari Common School (亘理小學校)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 27th 13h 45.3m	4° 21′ 48″	Imamura	Tamaru
,, ,, 14 1.8	,, 22 0	,,	,,
,, ,, 14 57.1	,, 23 1	,,	,,
,, ,, 16 8.5	,, 23 5	Tamaru	Imamura
,, ,, 17 16.3	,, 19 13	Nakamura	,,
,, ,, 17 32.7	,, 19 11	Tamaru	,,
,, ,, 17 44.2	,, 18 15	Nakamura	,,
,, ,, 17 54.1	,, 18 6	Imamura	,, Nakamura
,, ,, 19 1.3	,, 20 18	,,	Tamaru
,, ,, 20 12.3	,, 20 1	Nakamura	Nakamura
,, ,, 22 32.1	,, 19 32	Imamura	Tamaru
,, 28th 0 25.6	,, 18 45	Nakamura	,, Nakamura
,, ,, 4 50.4	,, 15 58	,,	,,
,, ,, 5 46.2	,, 17 28	,,	,,
,, ,, 6 9.0	,, 17 5	,,	,,
,, ,, 6 52.0	,, 16 6	,,	,,
,, ,, 8 3.8	,, 18 17	Tamaru	Tamaru
,, ,, 8 45.3	,, 19 5	,,	,,
,, ,, 9 18.2	,, 19 57	,,	,,
,, ,, 9 55.0	,, 20 51	,,	,,
,, ,, 11 1.1	,, 22 46	,,	Nakamura
,, ,, 11 56.4	,, 23 5	,,	Tamaru
,, ,, 12 55.9	,, 22 33	,,	,,
,, ,, 13 45.3	,, 21 55	Nakamura	Nakamura
,, ,, 14 30.3	,, 22 35	Tamaru	Tamaru
Mean	4° 19′ 38″		

$\delta = 4°\ 19'.63$

Reduction to 1895.0 = -0.78

,, ,, sea level = 0.00

$\delta = 4°\ 18'.8$

DIP (θ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 27th 16h 6m	—	51° 31!5	Nakamura	Tamaru
,, ,, 21 33	1	,, 31.2	Tamaru	Imamura
,, 28th 7 28	—	,, 32.1	Nakamura	Nakamura
,, ,, 11 55	—	,, 30.1	Tamaru	Tamaru
Mean		51° 31!2		

θ = 51° 31!2
Reduction to 1895.0 = −0.06
,, ,, sea level = 0.00
θ = 51° 31!1

HORIZONTAL INTENSITY.
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 27th 14h 41m	0.29052	432.56	28.5C	s 5.9290	28.7C	6°24′53″1	14°38′31″9	28.4C	Imamura	Tamaru
,, ,, 18 40	0.29013	434.19	24.0	5.9208	23.8	6 26 43.8	14 42 39.4	24.1	Nakamura	Imamura
,, ,, 23 58	0.29020	434.25	23.6	5.9203	23.7	6 26 47.5	14 42 48.8	23.5	Tamaru	Nakamura
,, 28th 10 37	0.28986	433.45	26.2	5.9278	26.1	6 26 11.9	14 41 18.1	26.4	Nakamura	Tamaru
Mean	0.29018									

H = 0.29018
Reduction to 1895.0 = −147
,, ,, sea level = 26
H = 0.29017

207. HUKUSIMA.

Hukusima Normal School (福島尋常師範學校附屬地)

DECLINATION (δ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 28th 22h 10.1m	4° 58′ 33″	Imamura	Imamura
,, ,, 22 31.5	,, 58 43	,,	,,
,, 29th 1 53.2	,, 58 3	,,	,,
,, ,, 4 57.4	,, 56 21	,,	,,
,, ,, 6 9.0	,, 56 45	,,	,,
,, ,, 6 46.7	,, 55 36	,,	,,
,, ,, 7 51.4	,, 56 43	Tamaru	Tamaru
,, ,, 9 2.1	,, 57 31	Nakamura	,,
,, ,, 10 20.1	,, 58 15	,,	Nakamura
,, ,, 11 23.3	,, 59 38	Imamura	Imamura
,, ,, 12 12.0	5 0 52	,,	Tamaru
,, ,, 13 5.7	,, 2 15	,,	,,
,, ,, 13 42.7	,, 2 6	Tamaru	Nakamura
,, ,, 13 55.1	,, 1 43	,,	,,
,, ,, 15 4.8	,, 1 54	Nakamura	Tamaru
,, ,, 15 18.3	,, 1 34	,,	,,
,, ,, 15 35.3	,, 1 30	,,	,,
,, ,, 16 34.1	,, 0 2	,,	{ ,, Nakamura
,, ,, 18 5.7	4 59 56	Tamaru	Tamaru
,, ,, 18 37.1	,, 59 57	,,	,,
,, ,, 19 45.9	,, 59 49	,,	,,
,, ,, 21 23.8	,, 58 44	Imamura	Nakamura
Mean	4° 58′ 56″		

δ = 4° 58!93
Reduction to 1895.0 = −0.78
,, ,, sea level = −0.01
δ = 4° 58!1

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	29th	0h	4m	1	51	2.9	Imamura	Imamura
,,	,,	7	26	1	,,	2.5	,,	,,
,,	,,	11	55	1	,,	3.6	Nakamura	,,
,,	,,	17	32		,,	3.6	Tamaru	Tamaru
Mean					51	3.2		

$\theta = 51 \quad 3'.2$

Reduction to 1895.0 = 0.0

,, ,, sea level = 0.0

$\theta = 51^\circ \quad 3'.2$

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July	29th	8h	40m	0.29139	434.45	22°.7C	5.9062 s	22.6C	6°25′18″.1	14°39′16″.9	22°.8C	Nakamura	Tamaru
,,	,,	14	45	0.29184	434.53	22.4	5.9016	22.5	6 24 59.1	14 38 46.9	22.3	Tamaru	Nakamura
,,	,,	20	37	0.29188	434.96	20.7	5.8979	20.7	6 25 26.2	14 39 57.5	20.7	Imamura	,,
,,	30th	8	1	0.29176	434.46	22.7	5.9024	22.6	6 24 56.2	14 38 35.6	22.8	Nakamura	Imamura
Mean				0.29172									

$H = 0.29172$

Reduction to 1895.0 = −200

,, ,, sea level = 92

$H = 0.29174$

210. YONEZAWA.

Play ground of Yonezawa Middle School (尋常中學校運動場)

DECLINATION (δ)

Observations of the North Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	2nd	20h	31.2m	4	52′	9″	Imamura	Nakamura
,,	,,	20	54.1	,,	52	15	,,	,,
,,	,,	22	6.9	,,	52	49	Nakamura	Imamura
,,	,,	23	21.2	,,	52	26	,,	Nakamura
,,	3rd	1	40.1	,,	51	56	,,	,,
,,	,,	3	46.9	,,	51	44	,,	,,
,,	,,	5	30.7	,,	50	43	,,	,,
,,	,,	6	5.9	,,	49	46	,,	,,
,,	,,	7	1.5	,,	47	44	,,	,,
,,	,,	7	44.9	,,	48	13	Imamura	Tamaru
,,	,,	8	52.6	,,	50	13	,,	,,
,,	,,	9	39.5	,,	51	56	Tamaru	Imamura
,,	,,	10	42.9	,,	50	21	Imamura	Tamaru
,,	,,	11	5.8	,,	50	10	Tamaru	,,
,,	,,	11	43.3	,,	54	22	,,	,,
,,	,,	12	46.1	,,	54	29	Imamura	Imamura
,,	,,	13	39.4	,,	54	55	,,	,,
,,	,,	14	50.4	,,	53	54	Tamaru	Tamaru
,,	,,	16	9.6	,,	51	56	Nakamura	Nakamura
,,	,,	16	35.7	,,	46	19	Imamura	,,
,,	,,	17	45.7	,,	45	51	Nakamura	,,
,,	4th	7	14.9	,,	40	58	,,	,,
,,	,,	8	56.1	,,	42	54	,,	,,
Mean				4°	51′	58″		

$\delta = 4^\circ \quad 51'.97$

Reduction to 1895.0 = −0.86

,, ,, sea level = −0.02

$\delta = 4^\circ \quad 51'.1$

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	2nd	14h	10m	—	51	21′.1	Tamaru	Tamaru
,,	,,	22	40	—	,,	22.6	Nakamura	Nakamura
,,	3rd	9	58	—	,,	28.7	Imamura	Tamaru
,,	,,	15	41	—	,,	25.4	Nakamura	Nakamura
Mean					51°	24′.5		

$\theta = 51 \quad 24'.5$

Reduction to 1895.0 = 0.18

,, ,, sea level = −0.01

$\theta = 51 \quad 24'.7$

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
							s						
Aug.	2nd	22h	35m	0.29057	433.47	24°.7 C	5.9035	24°.7 C	6°25′30″.6	14°39′45″.0	24°.7 C	Nakamura	Imamura
,,	3rd	8	19	0.28977	430.71	30.2	5.9298	29.8	6 23 51.9	14 35 58.8	30.7	Tamaru	,,
,,	,,	14	29	0.29105	431.70	31.0	5.9118	31.3	6 23 16.3	14 34 34.4	30.7	Nakamura	Tamaru
Mean				0.29046									

$H = 0.29046$

Reduction to 1895.0 = −258

,, ,, sea level = 330

$H = 0.29047$

211. YAMAGATA.

Yamagata Middle School (山形尋常中學校)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	4th	22h	24.8m	4°	45′	31″	Nakamura	Nakamura
,,	,,	23	11.2	,,	45	32	Tamaru	Tamaru
,,	5th	4	27.0	,,	43	27	,,	,,
,,	,,	5	44.9	,,	41	40	,,	,,
,,	,,	7	20.4	,,	40	5	,,	,,
,,	,,	8	25.6	,,	41	18	,,	,,
,,	,,	9	29.6	,,	43	40	Nakamura	Nakamura
,,	,,	10	40.5	,,	46	56	,,	,,
,,	,,	12	7.8	,,	50	50	,,	,,
,,	,,	13	17.5	,,	51	35	Tamaru	Tamaru
,,	,,	14	21.2	,,	48	4	,,	Nakamura
,,	,,	15	1.4	,,	46	50	Nakamura	,,
,,	,,	16	47.8	,,	44	47	,,	Tamaru
,,	,,	18	44.4	,,	44	58	,,	Nakamura
,,	,,	19	48.5	,,	45	34	Tamaru	Tamaru
,,	,,	20	38.3	,,	45	27	Nakamura	Nakamura
,,	,,	22	13.0	,,	44	43	,,	,,
,,	6th	9	25.3	,,	51	25	,,	Tamaru
,,	,,	10	43.9	,,	55	23	Tamaru	Nakamura
,,	,,	11	4.0	,,	49	22	,,	,,
,,	,,	11	12.6	,,	49	25	,,	,,
,,	,,	11	33.3	,,	55	50	,,	Tamaru
,,	,,	12	37.3	,,	55	0	Nakamura	Nakamura
,,	,,	13	24.7	,,	52	32	,,	Tamaru
,,	,,	13	54.8	,,	52	13	Tamaru	,,
,,	,,	14	12.3	,,	53	38	,,	Nakamura
Mean				4°	44′	59″		

$\delta = 4° \quad 44'.98$

Reduction to 1895.0 = −0.92

,, ,, sea level = −0.01

$\delta = 4° \quad 44'.0$

DIP (θ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time)				Needle No.	θ		Observer	Recorder
Aug.	5th	8h	55m	—	51°	59.9	Tamaru	Tamaru
,,	,,	15	43	—	,,	52.4	Nakamura	Nakamura
,,	,,	23	8	—	,,	55.5	,,	,,
,,	6th	8	20	—	,,	58.6	Tamaru	Tamaru
Mean					51	56.6		

$\theta = 51 \quad 56.6$
Reduction to 1895.0 = 0.24
,, ,, sea level = 0.00
$\theta = 51 \quad 56.8$

HORIZONTAL INTENSITY (H)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_V	Mean Deflections		Temp. t_D	Observer	Recorder
									φ_1	φ_2			
Aug.	5th	13h	59m	0.28969	432.81	26.7C	s 5.9170	26.8C	6°26′30.″0	14 12′40.″0	26.6C	Nakamura	Tamaru
,,	,,	21	47	0.28905	433.15	23.6	5.9211	23.6	6 27 26.9	14 44 30.0	23.5	Tamaru	Nakamura
,,	6th	10	14	0.28934	432.14	29.6	5.9263	30.0	6 26 7.5	14 41 23.8	29.1	,,	,,
,,	,,	12	21	0.28935	430.72	32.2	5.9358	32.1	6 24 43.2	14 38 6.3	31.9	Nakamura	Tamaru
Mean				0.28936									

$H = 0.28936$
Reduction to 1895.0 = −245
,, ,, sea level = 213
$H = 0.28936$

212. SINZYŌ.

Tozawa Zinsya (戸 澤 神 社)

DECLINATION (δ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	7th	15h	33.8m	5°	15′	14″	Nakamura	Imamura
,,	,,	16	1.8	,,	14	44	Imamura	Nakamura
,,	,,	17	2.0	,,	13	0	,,	Sutō
,,	,,	18	2.8	,,	12	0	,,	,,
,,	,,	19	7.2	,,	12	32	Nakamura	Nakamura
,,	,,	19	58.8	,,	12	59	,,	Sutō
,,	,,	21	27.5	,,	13	14	Imamura	,,
,,	8th	4	42.0	,,	14	34	,,	Imamura
,,	,,	6	18.7	,,	12	36	,,	,,
,,	,,	6	45.5	,,	11	13	,,	,,
,,	,,	7	51.3	,,	16	25	Nakamura	Nakamura
,,	,,	9	2.8	,,	15	51	,,	Sutō
,,	,,	9	20.2	,,	20	33	,,	,,
,,	,,	10	50.2	,,	24	55	,,	Nakamura
,,	,,	11	25.4	,,	26	13	,,	,,
,,	,,	11	43.8	,,	20	28	,,	Sutō
,,	,,	12	53.3	,,	24	29	Sutō	Imamura
,,	,,	13	49.0	,,	21	44	Nakamura	Sutō
,,	,,	14	44.5	,,	16	11	,,	,,
,,	,,	15	19.7	,,	14	19	Imamura	Nakamura
,,	,,	15	46.4	,,	13	11	,,	,,
,,	,,	17	22.7	,,	11	17	,,	Sutō
,,	,,	18	32.7	,,	10	54	Sutō	Nakamura
,,	,,	19	33.6	,,	10	10	,,	Sutō
,,	,,	20	49.8	,,	11	4	,,	,,
,,	,,	21	44.3	,,	11	5	Nakamura	Nakamura
,,	,,	23	52.7	,,	10	39	,,	,,
,,	9th	1	31.4	,,	9	14	,,	,,
,,	,,	3	43.9	,,	8	55	,,	,,
,,	,,	6	29.9	,,	6	9	,,	,,
,,	,,	7	31.2	,,	5	36	,,	,,
,,	,,	8	41.3	,,	6	38	Sutō	Sutō
,,	,,	9	39.5	,,	8	54	,,	,,
Mean				5°	10′	42″		

$\delta = 5 \quad 10.70$
Reduction to 1895.0 = −1.06
,, ,, sea level = −0.04
$\delta = 5 \quad 9.6$

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	7th	17h	44m	—	52	24.7	Nakamura	Sutō Nakamura
„	„	22	47	1	„	27.7	Sutō	Imamura Sutō
„	8th	14	54	1	„	31.4	„	„
„	„	17	3	1	„	25.4	Imamura	Imamura Sutō
„	9th	6	58	1	„	27.2	Nakamura	Nakamura
Mean					52°	27.3		

$\theta = 52°\ 27'.3$
Reduction to 1895.0 = 0.48
„ „ sea level = 0.00
$\theta = 52°\ 27'.8$

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib².	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 7th 16h 40m	0.28740	432.08	26.6C	5.9648 s	26.8C	6°28′47″.5	14°47′44″.4	26.3C	Nakamura	Imamura
„ „ 20 52	0.28719	433.28	25.4	5.9575	25.3	6 29 36.2	14 48 53.8	25.5	Imamura	Sutō
„ 8th 10 25	0.28708	430.72	31.1	5.9767	31.1	6 27 35.6	14 44 46.9	31.8	Sutō	Nakamura
„ „ 17 53	0.28726	431.88	27.5	5.9667	27.4	6 28 35.6	14 47 11.2	27.6	Imamura	„
Mean	0.28723									

$H = 0.28723$
Reduction to 1895.0 = −269
„ „ sea level = 134
$H = 0.28722$

613. SAKATA.

Sakata Common School (酒田小學校)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	10th	11h	41.0m	5°	17′	10″	Imamura	Nakamura
„	„	11	55.0	„	18	8	„	„
„	„	13	4.8	„	16	47	Sutō	Sutō
„	„	14	16.3	„	15	0	„	„
„	„	14	51.4	„	13	59	Imamura	„
„	„	15	36.0	„	15	11	„	„
„	„	16	17.8	„	12	3	„	Imamura
„	„	17	9.6	„	12	42	„	„
„	„	17	23.4	„	13	58	„	„
„	„	18	27.7	„	13	31	Nakamura	Nakamura
„	„	19	25.1	„	13	10	„	„
„	„	20	50.4	„	9	43	„ Imamura Sutō	„
„	„	22	35.3	„	12	21	Nakamura	Sutō
„	„	23	52.8	„	13	25	„	Nakamura
„	11th	3	21.2	„	13	36	„	Sutō
„	„	4	40.4	„	11	16	„	Nakamura
„	„	5	48.5	„	11	1	„	„
„	„	6	51.6	„	8	44	„	„
				To be continued				

Continued

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	11th	8h	9.1m	5	9′	56″	Nakamura	Nakamura
,,	,,	8	57.3	,,	11	51	,,	,,
,,	,,	10	3.0	,,	13	43	,,	,,
,,	,,	10	22.6	,,	11	56	,,	,,
,,	,,	11	0.6	,,	15	33	,,	,,
,,	,,	11	33.0	,,	13	10	,,	,,
,,	,,	11	40.1	,,	9	57	,,	,,
,,	,,	11	56.8	,,	15	31	,,	,,
,,	,,	12	10.7	,,	16	40	,,	,,
,,	,,	13	14.7	,,	17	33	,,	,,
,,	,,	14	3.5	,,	18	0	,,	,,
,,	,,	15	1.7	,,	17	10	,,	,,
Mean				5	13′	11″		

δ = 5° 13′.18
Reduction to 1895.0 = −1.14
,, ,, sea level = 0.00
δ = 5° 12′.0

DIP (θ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	10th	16h	52m	1	52	41′.4	Imamura	Imamura
,,	,,	19	25	1	,,	43.5	Sutō	{ Sutō Imamura
,,	,,	23	49	—	,,	48.1	Nakamura	Nakamura
Mean					52°	44′.3		

θ = 52° 44′.3
Reduction to 1895.0 = 0.67
,, ,, sea level = 0.00
θ = 52 45′.0

HORIZONTAL INTENSITY (H)
(* *Value deduced from Vibration only by assuming Value of M.*)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	10th	12h	37m	0.28645	429.92	33°.7C	5.9892	33°.7C	6°27′36″.9	14°44′35″.0	33°.7C	Nakamura	Imamura
,,	,,	15	14	0.28669	430.81	32.3	5.9828	33.2	6 28 28.8	14 46 38.8	31.4	Imamura	Sutō
,,	,,	20	31	*0.28631	431.60	28.3	5.9964	28.7	(6 29 37.5	14 49 32.5	28.3)	Sutō	Imamura
,,	11th	4	7	0.28658	432.36	25.6	5.9703	25.6	6 30 3.7	14 50 38.8	25.6	Nakamura	Sutō
Mean				0.28651									

H = 0.28651
Reduction to 1895.0 = −324
,, ,, sea level = 0
H = 0.28648

214. ATUMI.

DIP (θ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	11th	14h	8m	1	52°	26′.5	Imamura	Sutō
,,	,,	15	54	1	,,	28.4	Sutō	Imamura
,,	,,	19	18	1	,,	20.2	,,	,,
,,	12th	7	8	—	,,	22.1	Imamura	Sutō
Mean					52°	24′.3		

θ = 52° 24′.3
Reduction to 1895.0 = 0.53
,, ,, sea level = 0.00
θ = 52 24′.8

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 11th 16^h 46^m	*0.28894	430.40	32°.4C	s 5.9599	32°.4C	—	—	—	Imamura	Sutō
,, ,, 16 58	*0.28885	430.40	32.4	5.9609	32.4	—	—	—	Sutō	Imamura
,, ,, 18 34	*0.28955	431.15	29.7	5.9483	29.7	—	—	—	,,	,,
,, ,, 18 44	*0.28923	431.25	29.4	5.9509	29.4	—	—	—	,,	,,
,, 12th 6 13	*0.28945	432.75	24.6	5.9380	24.6	—	—	—	Imamura	Sutō
,, ,, 6 29	*0.28966	432.50	25.4	5.9376	25.4	—	—	—	Sutō	Imamura
Mean	0.28928									

$H=$ 0.28928

Reduction to 1895.0 = −356

,, ,, sea level = 0

$H=$ 0.28924

215. MURAKAMI.

Murakami High Common school (村上高等小學校)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time)	δ	Observer	Recorder
Aug. 12th 17^h 7.3^m	5° 14′ 7″	Imamura	Sutō
,, ,, 17 21.8	,, 13 44	Sutō	Nakamura
,, ,, 18 23.9	,, 13 2	Imamura	Imamura / Sutō
,, ,, 19 38.3	,, 12 13	Sutō	,,
,, ,, 20 57.0	,, 12 15	Imamura	Nakamura
,, ,, 22 10.7	,, 11 54	,,	Sutō
,, 13th 2 5.9	,, 11 22	,,	Imamura
,, ,, 4 50.4	,, 10 26	,,	,,
,, ,, 5 33.0	,, 9 59	,,	,,
,, ,, 6 37.0	,, 8 50	,,	,,
,, ,, 7 14.8	,, 8 36	,,	,,
,, ,, 8 40.2	,, 8 34	Nakamura	Sutō
,, ,, 9 56.7	,, 10 0	,,	Imamura
,, ,, 10 56.5	,, 12 19	,,	Nakamura
,, ,, 11 43.5	,, 14 1	Imamura	Imamura
,, ,, 12 41.7	,, 15 13	Nakamura	Nakamura
,, ,, 13 57.5	,, 15 19	Imamura	Imamura
,, ,, 14 52.1	,, 14 11	Nakamura	Nakamura
Mean	5° 11′ 56″		

$\delta=5°$ 11′.93

Reduction to 1895.0 = −1.04

,, ,, sea level = 0.00

$\delta=5°$ 10′.9

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 12th 18^h 7^m	1	52 1.0	Nakamura	Suto
,, 13th 0 36	1	,, 0.1	Imamura	Imamura
,, ,, 6 12	1	51 58.7	,,	,,
,, ,, 8 14	1	,, 59.2	Sutō	Sutō
Mean		51° 59′.8		

$\theta=51°$ 59′.8

Reduction to 1895.0 = 0.55

,, ,, sea level = 0.00

$\theta=52°$ 0′.4

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 12th 19h 3m	0.28929	431.02	30°.1C	5.9517s	30°.0C	6°25′ 3″.1	14°38′58″.8	30°.2C	Imamura	Nakamura
,, ,, 21 43	0.28920	432.21	25.8	5.9463	26.7	6 24 41.9	14 42 45.6	24.9	Nakamura	Imamura
,, 13th 9 33	0.28928	430.90	31.7	5.9536	32.0	6 24 51.2	14 38 11.9	31.4	Sutō	Nakamura
,, ,, 13 16	0.28962	429.79	33.9	5.9597	34.9	6 23 41.4	14 35 52.5	33.0	Imamura	,,
Mean	0.28935									

$H =$ 0.28935
Reduction to 1895.0 = −373
,, ,, sea level = 0
$H =$ 0.28931

216. OGUNI.

Oguni Police Station (小國警察署)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 14th 13h 17.4m	5° 5′ 51″	Imamura	Imamura
,, ,, 13 30.7	,, 5 56	,,	,,
,, ,, 14 56.4	,, 4 38	Sutō	Sutō
,, ,, 15 58.5	,, 2 51	,,	,,
,, ,, 17 0.5	,, 0 19	Imamura	Nakamura
,, ,, 17 59.1	,, 0 27	,,	,,
,, ,, 19 0.4	,, 0 9	Sutō	Sutō
,, ,, 19 49.4	,, 0 47	Imamura	Imamura
,, ,, 20 37.5	,, 0 59	Nakamura	Nakamura
,, ,, 21 42.4	,, 0 32	,,	,,
,, ,, 23 0.3	,, 0 5	,,	,,
,, 15th 3 31.3	4 59 57	,,	,,
,, ,, 5 24.0	,, 58 9	,,	,,
,, ,, 6 24.8	,, 57 9	,,	,,
,, ,, 7 21.1	,, 57 12	,,	,,
,, ,, 8 39.7	,, 58 2	Imamura	Sutō
,, ,, 9 31.9	,, 58 31	Sutō	,,
,, ,, 10 19.8	5 0 52	Imamura	,,
,, ,, 11 27.2	,, 2 41	Sutō	,,
,, ,, 12 11.4	,, 3 34	,,	,,
,, ,, 13 10.1	,, 3 54	,,	,,
Mean	5° 0′ 30″		

$\delta =$ 5° 0′.50
Reduction to 1895.0 = −1.00
,, ,, sea level = −0.01
$\delta =$ 5° 59′.5

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 14th 15h 37m	1	51° 48′.0	Imamura	Sutō
,, ,, 18 37	—	,, 43.7	Sutō	,,
,, ,, 23 35	—	,, 45.0	Nakamura	Nakamura
,, 15th 6 59	1	,, 44.1	,,	,,
Mean		51° 45′.2		

$\theta =$ 51° 45′.2
Reduction to 1895.0 = 0.43
,, ,, sea level = 0.00
$\theta =$ 51° 45′.6

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 14th 13^h 30^m	0.28973	429.98	31.°7C	5.^{s}9552	31.°9C	6°23′38.″1	14°35′43.″8	31.°5C	Imamura	Sutō
,, ,, 18 39	0.28952	430.71	29.8	5.9539	30.7	6 24 53.8	14 38 42.5	28.8	Nakamura	Imamura
,, ,, 22 21	0.28951	433.29	22.4	5.9326	22.5	6 26 56.2	14 43 25.0	22.3	Imamura	Nakamura
,, 15th 8 17	0.28954	432.62	25.3	5.9357	24.5	6 25 38.8	14 39 46.9	26.1	Sutō	Imamura
Mean	0.28960									

H= 0.28960
Reduction to 1895.0= −339
,, ,, sea level= 133
H= 0.28958

217. TUGAWA.

Tugawa High Common School (津川高等小學校)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 19th 0^h 20.7^m	5° 9′ 26″	Imamura	Imamura
,, ,, 2 2.4	,, 7 51	,,	,,
,, ,, 5 11.9	,, 7 7	,,	,,
,, ,, 6 4.6	,, 5 50	,,	,,
,, ,, 6 57.8	,, 4 54	,,	,,
,, ,, 7 27.1	,, 4 34	,,	Sutō
,, ,, 8 48.8	,, 6 4	Nakamura	Nakamura
,, ,, 9 32.3	,, 8 42	,,	,,
,, ,, 10 34.9	,, 10 55	Imamura	Imamura
,, ,, 11 27.3	,, 13 9	Nakamura	Nakamura
,, ,, 12 22.4	,, 14 18	,,	,,
,, ,, 13 17.5	,, 13 52	Sutō	Sutō
,, ,, 14 29.8	,, 13 3	,,	,,
,, ,, 15 42.0	,, 12 17	Nakamura	Nakamura
,, ,, 16 42.4	,, 11 1	Sutō	Sutō
,, ,, 17 38.7	,, 10 9	Imamura	Imamura
,, ,, 18 35.6	,, 9 45	Sutō	,,
,, ,, 19 28.9	,, 10 1	Imamura	,,
,, ,, 20 26.1	,, 9 55	,,	,,
Mean	5 9′ 30″		

δ=5° 9.′50
Reduction to 1895.0= −0.96
,, ,, sea level= −0.01
δ=5° 8.′5

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 19th 1^h 19^m	1	51 19.′9	Imamura	Imamura
,, ,, 6 35	1	,, 22.7	,,	,,
,, ,, 10 3	1	,, 21.7	Nakamura	Nakamura
,, ,, 13 53	1	,, 21.3	Sutō	Sutō
Mean		51° 21.′4		

θ=51° 21.′4
Reduction to 1895.0= 0.38
,, ,, sea level= 0.00
θ=51° 21.′8

HORIZONTAL INTENSITY (*H*)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections. φ_1	φ_2	Temp. t_D	Observer	Recorder
				s						
Aug. 19th 8h 25m	0.29053	430.48	29.8C	5.9108	29.0C	6 22′38″8	14 33′10″0	30.7 C	Nakamura	Sutō
,, ,, 11 55	0.29063	429.64	32.9	5.9472	32.6	6 21 45.0	14 31 5.0	33.2	Imamura	Nakamura
,, ,, 12 1	0.29066	429.61	33.1	5.9477	33.0	6 21 45.0	14 31 5.0	33.2	,,	,,
,, ,, 15 27	0.29049	429.06	34.0	5.9543	34.3	6 21 36.9	14 30 15.0	33.6	Sutō	,,
,, ,, 20 3	0.29015	431.35	26.2	5.9465	26.2	6 21 40.0	14 36 40.6	26.2	,,	Imamura
Mean	0.29049									

H = 0.29049
Reduction to 1895.0 = −378
,, ,, sea level = 103
H = 0.29046

218. WAKAMATU.

Aizu Middle School (會津尋常中學校)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 21st 10h 8.4m	4 48′ 58″	Sutō	Nakamura
,, ,, 11 5.4	,, 51 13	Imamura	Imamura
,, ,, 12 10.2	,, 52 11	Nakamura	,,
,, ,, 13 10.6	,, 52 23	Sutō	Sutō
,, ,, 14 11.5	,, 51 49	,,	Nakamura
,, ,, 15 7.5	,, 50 20	,,	Imamura
,, ,, 16 2.2	,, 49 50	Imamura	Nakamura
,, ,, 17 10.4	,, 48 56	Nakamura	Imamura
,, ,, 18 41.2	,, 49 32	Sutō	Sutō
,, ,, 19 56.1	,, 49 30	Nakamura	Nakamura
,, ,, 21 44.2	,, 49 45	,,	Imamura
,, ,, 22 59.5	,, 49 53	Imamura	,,
,, 22nd 5 1.2	,, 17 20	Nakamura	Nakamura
,, ,, 5 38.9	,, 46 29	,,	,,
,, ,, 6 48.5	,, 44 18	Imamura	Imamura
,, ,, 7 42.9	,, 44 33	Nakamura	Nakamura
,, ,, 8 19.6	,, 45 16	Imamura	,,
Mean	4 49′ 16″		

δ = 4 49′17
Reduction to 1895.0 = −0.87
,, ,, sea level = −0.02
δ = 4 48′3

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 21st 10h 51m	1	51 16.5	Nakamura	Sutō
,, ,, 15 35	1	,, 10.6	Sutō	,,
,, ,, 22 30	1	,, 15.8	Imamura	Imamura
,, 22nd 6 12	1	,, 22.1	Nakamura	Nakamura
Mean		51 16.3		

θ = 51 16.3
Reduction to 1895.0 = 0.13
,, ,, sea level = −0.01
θ = 51 16.4

HORIZONTAL INTENSITY (*H*)

Observations of the South Party, 1894.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 21st 11h 46m	0.28996	429.74	31°.2C	5.9561s	32°.0C	6°23′ 1″.3	14°33′46″.9	30°.3C	Nakamura	Imamura
,, ,, 14 48	0.29054	429.70	31.2	5.9501	31.5	6 22 20.0	14 32 26.9	30.8	Sutō	,,
,, ,, 20 46	0.29020	431.50	26.6	5.9388	26.6	6 24 5.6	14 35 20.0	26.7	Imamura	Nakamura
,, 22nd 7 28	0.29015	431.45	25.8	5.9376	24.9	6 23 58.1	14 35 14.4	26.7	,,	,,
Mean	0.29019									

H = 0.29019
Reduction to 1895.0 = −288
,, ,, sea level = 288
H = 0.29019

219. TAZIMA.

Tazima Common School (田嶋小學校)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 22nd 22h 14.6m	4° 42′ 51″	Nakamura	Sutō
,, ,, 23 8.0	,, 42 30	Sutō	,,
,, 23rd 2 42.1	,, 42 15	,,	,,
,, ,, 4 43.6	,, 41 54	,,	,,
,, ,, 6 16.0	,, 40 20	,,	,,
,, ,, 7 37.4	,, 38 45	,,	,,
,, ,, 8 26.0	,, 39 10	Imamura	Imamura
,, ,, 9 26.1	,, 41 25	Nakamura	Nakamura
,, ,, 10 33.6	,, 43 54	Sutō	Sutō
,, ,, 11 44.8	,, 45 37	Imamura	Imamura
,, ,, 12 48.8	,, 46 0	Nakamura	Nakamura
,, ,, 13 38.0	,, 46 7	Sutō	Sutō
,, ,, 14 38.5	,, 44 50	Imamura	,,
,, ,, 15 45.1	,, 43 37	Sutō	,,
,, ,, 16 40.2	,, 42 25	Imamura	Imamura
,, ,, 18 36.3	,, 42 37	Nakamura	Sutō
,, ,, 19 21.5	,, 42 47	Imamura	Nakamura
Mean	4 42′ 21″		

δ = 4° 42′.35
Reduction to 1895.0 = −0.81
,, ,, sea level = −0.04
δ = 4° 41′.5

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 23rd 5h 51m	1	51° 8′.7	Sutō	Sutō
,, ,, 11 26	1	,, 10.2	Nakamura	Imamura
,, ,, 15 12		,, 13.4	Imamura	,,
,, ,, 19 3	1	,, 8.1	Nakamura	,,
Mean		51° 10′.1		

θ = 51° 10′.1
Reduction to 1895.0 = 0.00
,, ,, sea level = −0.02
θ = 51° 10′.1

HORIZONTAL INTENSITY (H)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 23nd 7^h 13^m	0.29032	431.28	25°.5C	^{s} 5.9387	25°.3C	6°23′40″.0	14°35′15″.6	25°.6C	Nakamura	Sutō
,, ,, 12 25	0.29084	428.68	33.7	5.9531	34.0	6 21 0.0	14 29 40.6	33.5	Imamura	Nakamura
,, ,, 17 39	0.29081	430.94	27.4	5.9371	27.5	6 22 56.3	14 33 50.0	27.3	Sutō	Imamura
Mean	0.29066									

$H=$ 0.29066
Reduction to 1895.0= −295
,, ,, sea level= 728
$H=$ 0.29070

220. TADAMI.

DECLINATION (δ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 24th 22^h 24.0^m	4° 41′ 46″	Nakamura	Nakamura
,, ,, 23 48.4	,, 41 40	,,	,,
,, 25th 4 53.5	,, 40 28	,,	,,
,, ,, 6 16.1	,, 38 50	Sutō	Sutō
,, ,, 7 31.7	,, 37 58	Imamura	Imamura
,, ,, 8 36.9	,, 38 30	,,	,,
,, ,, 9 27.5	,, 40 56	Sutō	Sutō
,, ,, 10 45.3	,, 43 35	Imamura	Imamura
,, ,, 12 19.1	,, 45 3	Sutō	Sutō
,, ,, 13 5.6	,, 44 36	Imamura	Imamura
Mean	4° 41′ 36″		

$\delta=4°$ 41′.60
Reduction to 1895.0= −0.92
,, ,, sea level= −0.03
$\delta=4°$ 40′.7

DIP (θ)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 24th 23^h 22^m	—	51° 5′.2	Nakamura	Nakamura
,, 25th 5 34	—	,, 4.6	,,	,,
,, ,, 10 24	1	,, 5.0	Imamura	Imamura
Mean		51 4′.9		

$\theta=51°$ 4′.9
Reduction to 1895.0= 0.26
,, ,, sea level= −0.02
$\theta=51°$ 5′.1

HORIZONTAL INTENSITY (H)
Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 24th 21^h 41^m	0.29163	430.15	24°.9C	^{s} 5.9339	25°.1C	6°21′17″.5	14°30′ 6″.2	24°.7C	Imamura	Sutō
,, 25th 7 7	0.29216	431.78	24.3	5.9163	24.0	6 21 40.0	14 30 35.6	24.6	Sutō	Nakamura
,, ,, 11 55	0.29268	428.19	36.2	5.9356	35.6	6 17 30.6	14 20 59.4	36.7	Imamura	Sutō
Mean	0.29216									

$H=$ 0.29216
Reduction to 1895.0= −388
,, ,, sea level= 485
$H=$ 0.29217

221. NIKKŌ.

Hotel Kamiyama (神山旅館)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	28th	17h	5.3m	4	26′	29″	Imamura	Imamura
,,	,,	17	35.1	..	26	10	Sutō	,,
,,	,,	18	57.9	..	26	49	Imamura	,,
,,	,,	19	51.6	..	27	1	Sutō	Sutō
,,	,,	21	9.0	..	27	8	,,	,,
,,	29th	5	1.11	..	26	14	Imamura	Imamura
,,	,,	6	12.3	..	24	41	,,	,,
,,	,,	7	20.2	..	23	36	,,	,,
,,	,,	8	6.2	..	23	59	Sutō	Sutō
,,	,,	9	19.6	..	26	4	,,	,,
,,	,,	10	14.3	..	28	35	,,	,,
,,	,,	11	38.6	..	30	7	Imamura	Imamura
,,	,,	12	37.3	..	29	32	Sutō	Sutō
,,	,,	13	38.7	,,	29	14	Nakamura	Nakamura
Mean				4	27′	2″		

$\delta = 4° \ 27'.03$

Reduction to 1895.0 $= -0.77$

,, ,, sea level $= -0.04$

$\delta = 4° \ 26'.2$

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	28th	18h	35m	1	50°	22′.6	Sutō	Imamura
,,	29th	5	49	1	,,	19.4	Imamura	,,
,,	,,	12	6	1	,,	14.4	Sutō	Sutō
,,	,,	13	10	—	,,	16.4	Nakamura	Nakamura
Mean					50°	18′.2		

$\theta = 50° \ 18'.2$

Reduction to 1895.0 $= -0.13$

,, ,, sea level $= -0.03$

$\theta = 50° \ 18'.0$

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^2.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 28th 20h 43m	0.29466	431.64	22.9 C	s 5.8923	22.7 C	6° 18′ 21″.2	14° 22′ 57″.5	23.2 C	Imamura	Sutō
,, 29th 7 2	0.29452	431.68	22.2	5.8926	21.7	6 18 40.0	14 23 56.9	22.7	Sutō	Nakamura
,, ,, 11 13	0.29460	430.18	26.9	5.9014	26.1	6 16 55.6	14 19 40.6	27.7	Imamura	Sutō
Mean	0.29457									

$H = 0.29457$

Reduction to 1895.0 $= -312$

,, ,, sea level $= 787$

$H = 0.29462$

222. SUKAGAWA.

Sukagawa Common School (須賀川小學校)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	30th	2h	41.8m	4°	52′	13″	Imamura	Sutō
,,	,,	4	30.1	,,	51	18	Sutō	,,
,,	,,	5	20.3	,,	50	49	,,	,,
,,	,,	6	34.6	,,	49	19	Imamura	Imamura
,,	,,	7	39.4	,,	50	33	Nakamura	Nakamura
,,	,,	8	48.4	,,	50	54	,,	,,
,,	,,	9	29.4	,,	52	14	,,	,,
,,	,,	10	40.2	,,	54	9	Sutō	Sutō
,,	,,	11	34.6	,,	55	29	Imamura	Imamura
,,	,,	12	38.6	,,	55	16	Sutō	Sutō
,,	,,	13	37.0	,,	55	9	Imamura	Imamura
,,	,,	14	36.5	,,	54	20	Nakamura	Nakamura
Mean				4°	52′	35″		

δ = 4° 52′.58
Reduction to 1895.0 = −0.81
,, ,, sea level = −0.02
δ = 4° 51′.8

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	30th	3h	54m	1	50°	44′.7	Sutō	Sutō
,,	,,	8	20	—	,,	47.9	Nakamura	Nakamura
,,	,,	13	59		,,	47.2	Sutō	,,
,,	,,	16	43	1	,,	44.9	Imamura	Imamura
Mean					50°	46′.3		

θ = 50° 46′.3
Reduction to 1895.0 = −0.13
,, ,, sea level = −0.01
θ = 50° 46′.2

HORIZONTAL INTENSITY (H)

(*Value deduced from Vibration only by assuming Value of M.)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug.	30th	7h	8m	*0.29141	431.80	22°.5C	5.9243s	22.5C	(6°23′27″.5	14 32′12″.5	23.4C)	Imamura	Sutō
,,	,,	10	4	0.29155	429.47	30.9	5.9388	30.5	6 20 3.8	14 26 39.4	31.2	Sutō	Nakamura
,,	,,	12	10	0.29187	428.92	31.8	5.9396	31.6	6 19 30.0	14 25 47.5	32.0	Imamura	,,
,,	,,	14	17	*0.29107	429.45	30.1	5.9446	30.1	—	—	—	Nakamura	Sutō
,,	,,	15	20	0.29132	429.50	28.8	5.9418	28.8	6 20 46.9	14 28 33.8	28.7	,,	,,
Mean				0.29144									

H = 0.29144
Reduction to 1895.0 = −247
,, ,, sea level = 325
H = 0.29145

223. NISINASUNO.

Nisinasuno Common School (西那須野小學校)

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	θ	Observer	Recorder
Aug. 31st 13h 30.2m	5 2′ 41″	Imamura	Imamura
,, ,, 14 11.2	,, 2 16	,,	,,
,, ,, 15 12.9	,, 1 39	Nakamura	Nakamura
,, ,, 16 3.3	,, 0 55	Imamura	Imamura
,, ,, 17 10.4	4 59 48	Sutō	Sutō
,, ,, 18 5.1	5 0 4	Imamuaa	Imamura
,, ,, 19 1.4	,, 0 11	Sutō	Sutō
,, ,, 20 2.8	4 59 52	Imamura	Imamura
,, ,, 22 23.9	,, 59 51	Sutō	Sutō
,, ,, 23 29.2	,, 58 47	,,	,,
Sept. 1st 0 48.2	,, 59 4	,,	,,
,, ,, 6 11.4	,, 56 33	,,	,,
,, ,, 7 39.7	,, 56 0	,,	,,
,, ,, 8 37.1	,, 56 31	Imamura	Imamura
,, ,, 9 32.0	,, 57 14	Nakamura	Nakamura
Mean	4° 59′ 34″		

$\delta = 4°\ 59'.57$
Reduction to 1895.0 = −0.78
,, ,, sea level = −0.01
$\delta = 4°\ 58'.8$

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 31st 15h 46m	—	50 29.8	Nakamura	Nakamura
,, ,, 18 34	1	,, 31.8	Imamura	Imamura
,, ,, 23 16	1	,, 24.2	Sutō	Sutō
Sept. 1st 7 7	—	,, 28.2	,,	,,
Mean		50° 28′.5		

$\theta = 50°\ 28'.5$
Reduction to 1895.0 = −0.13
,, ,, sea level = −0.01
$\theta = 50°\ 28'.4$

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 31st 14h 56m	0.29402	428.79	30°.3C	s 5.9208	30°.9C	6°17′ 0″.0	14 20′ 8″.8	29°.7C	Imamura	Nakamura
,, ,, 17 48	0.29402	429.36	28.9	5.9167	29.6	6 17 30.0	14 21 12.5	28.3	Sutō	Imamura
,, ,, 21 57	0.29423	430.65	25.7	5.9042	25.8	6 18 19.4	14 23 15.6	25.7	Imamura	Sutō
Sept. 1st 8 11	0.29371	430.65	25.5	5.9095	25.6	6 18 47.5	14 24 0.6	25.5	Nakamura	Imamura
Mean	0.29400									

$H = 0.29400$
Reduction to 1895.0 = −282
,, ,, sea level = 266
$H = 0.29400$

224. UTUNOMIYA.

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	1st	16h	36.7m	4°	26′	58″	Imamura	Nakamura
,,	,,	16	58.8	,,	23	54	Sutō.	Imamura
,,	,,	18	13.6	,,	26	28	Nakamura	Nakamura
,,	,,	19	19.6	,,	23	33	,,	,,
,,	,,	21	52.4	,,	26	11	Imamura	Sutō
,,	,,	23	12.7	,,	26	5	,,	Imamura
,,	2nd	5	19.7	,,	24	12	,,	,,
,,	,,	5	52.0	,,	23	28	,,	,,
,,	,,	7	4.6	,,	22	21	,,	,,
,,	,,	7	24.0	,,	22	13	,,	,,
,,	,,	8	51.3	,,	23	33	Nakamura	Sutō
,,	,,	9	53.3	,,	26	28	Sutō	,,
,,	,,	10	50.7	,,	28	25	,,	,,
,,	,,	11	48.9	,,	30	12	,,	Imamura
,,	,,	12	57.2	,,	30	13	Nakamura	Nakamura
,,	,,	13	53.3	,,	29	3	Imamura	Imamura
Mean				4°	26′	20″		

$\delta = 4° \quad 26'.33$

Reduction to 1895.0 $= \quad -0.70$

,, ,, sea level $= \quad -0.01$

$\delta = 4° \quad 25'.6$

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	1st	18h	56m	1	50°	11′.7	Nakamura	Nakamura
,,	,,	22	35	1	,,	8.1	Imamura	Imamura
,,	2nd	6	43	1	,,	9.2	,,	,,
,,	,,	11	27	1	,,	8.6	Sutō	,,
Mean					50	9′.4		

$\theta = 50° \quad 9'.4$

Reduction to 1895.0 $= \quad -0.33$

,, ,, sea level $= \quad -0.01$

$\theta = 50° \quad 9'.1$

HORIZONTAL INTENSITY (H)

Observations of the South Party 1895.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Sept.	1st	17h	54m	0.29513	429.56	28°.2C	5.9028 s	28.3C	6°16′ 1″.9	14°17′43″.1	28.1C	Nakamura	Imamura
,,	,,	21	29	0.29555	430.17	25.4	5.8935	25.2	6 15 48.8	14 16 55.6	25.6	Imamura	Sutō
,,	2nd	8	34	0.29507	430.25	27.5	5.8968	26.9	6 16 25.6	14 18 34.4	28.2	Sutō	Nakamura
,,	,,	12	41	0.29555	427.83	34.1	5.9114	34.4	6 14 5.0	14 13 27.5	33.7	Imamura	,,
Mean				0.29533									

$H = 0.29533$

Reduction to 1895.0 $= \quad -281$

,, ,, sea level $= \quad 155$

$H = 0.29532$

225. KOGA.

DECLINATION (δ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	3rd	13h	14.8m	4°	34′	39″	Nakamura	Imamura
,,	,,	13	58.5	,,	34	27	Imamura	Nakamura
,,	,,	15	38.9	,,	32	32	Nakamura	,,
,,	,,	16	50.2	,,	31	18	Satō	Sutō
,,	,,	18	4.3	,,	30	27	,,	,,
,,	,,	19	34.0	,,	30	36	Imamura	Nakamura
,,	,,	21	51.3	,,	30	48	,,	,,
,,	,,	22	51.0	,,	30	42	Nakamura	Imamura
,,	4th	4	16.0	,,	28	43	,,	Nakamura
,,	,,	5	57.0	,,	27	33	,,	,,
,,	,,	7	7.4	,,	26	12	,,	,,
,,	,,	7	49.7	,,	26	7	Imamura	Imamura
,,	,,	8	40.3	,,	26	30	Sutō	Sutō
,,	,,	9	43.5	,,	28	17	Nakamura	Nakamura
,,	,,	10	40.8	,,	30	51	Suto	Sutō
,,	,,	11	40.1	,,	33	28	,,	,,
,,	,,	12	22.3	,,	35	38	,,	Nakamura
Mean				4	30′	19″		

δ = 4° 30′.32

Reduction to 1895.0 = −0.66

,, ,, sea level = 0.00

δ = 4° 29′.7

DIP (θ)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	3rd	16h	28m	1	49°	47′.2	Imamura	Imamura
,,	,,	18	56	1	,,	49.7	Sutō	Sutō
,,	,,	20	16	—	,,	49.4	Nakamura	Nakamura
,,	4th	6	47	1	,,	48.6	,,	,,
Mean					49°	48′.7		

θ = 49° 48′.7

Reduction to 1895.0 = −0.34

,, ,, sea level = 0.00

θ = 49° 48′.4

HORIZONTAL INTENSITY (H)

Observations of the South Party, 1895.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	3rd	15h	3m	0.29492	427.41	35.0 C	s 5.9231	36.4 C	6° 14′ 46″.2	14° 11′ 57″.5	33.7 C	Imamura	Nakamura
,,	,,	17	36	0.29430	429.52	29.5	5.9128	30.4	6 16 48.1	14 18 54.4	28.9	Sutō	,,
,,	,,	22	10	0.29484	430.08	26.9	5.9017	26.9	6 16 55.6	14 19 55.6	27.0	Nakamura	Imamura
,,	4th	9	10	0.29425	429.51	29.1	5.9109	28.7	6 16 46.9	14 19 14.4	29.6	,,	Sutō
Mean				0.29458									

H = 0.29458

Reduction to 1895.0 = −312

,, ,, sea level = 26

H = 0.29455

226. HATIMAN.

Suwa-zinsya (岡山村字小舟木諏訪神社)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	1st	14h	49m	4°	47′	44″	Kato	Tomoda
,,	,,	16	14	,,	46	2	Tomoda	Katō
,,	,,	16	45	,,	45	10	,,	,,
,,	,,	18	17	,,	44	53	,,	,,
,,	,,	19	56	,,	44	54	Katō	,,
,,	,,	22	59	,,	44	45	Tomoda	Tomoda
,,	2nd	1	50	,,	44	24	,,	,,
,,	,,	4	49	,,	43	49	,,	,,
,,	,,	7	6	,,	41	24	,,	,,
,,	,,	8	22	,,	40	8	Katō	Katō
,,	,,	9	42	,,	44	52	Tomoda	,,
,,	,,	11	5	,,	45	23	Katō	Tomoda
,,	,,	12	25	,,	47	14	Tomoda	,,
,,	,,	13	53	,,	47	52	,,	Katō
Mean				4°	44′	37″		

δ = 4° 44'.62
Reduction to 1895.0 = −1.53
,, ,, sea level = 0.00

δ = 4° 43'.1

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
June	30th	17h	36m	—	48°	52'.4	Tomoda	Katō
July	1st	15	50	—	,,	49.6	Katō	Tomoda
,,	2nd	10	36	—	,,	52.0	Tomoda	Katō
Mean					48°	51'.3		

θ = 48° 51'.30
Reduction to 1895.0 = 1.50
,, ,, sea level = −0.01

θ = 48° 52'.8

HORIZONTAL INTENSITY (H)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	1st	17h	42m	0.30212	425.09	23.8C	5.8161s	24.3C	6° 4′24″.2	13 45′43″.7	23.3C	Tomoda Katō	Katō Tomoda
,,	2nd	9	14	0.30207	425.07	24.7	5.8151	24.4	6 4 7.5	13 44 43.7	25.1	Tomoda Katō	Katō Tomoda
,,	,,	13	30	0.30210	424.17	27.3	5.8217	27.2	6 3 31.2	13 43 37.5	27.4	Tomoda Katō	Katō Tomoda
Mean				0.30210									

H = 0.30210
Reduction to 1895.0 = −1982
,, ,, sea level = 64

H = 0.30191

227. KYŌTO.

Imperial University (京都帝國大學)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	3rd	16h	5m	4	17′	35″	Katō	Tomoda
,,	,,	17	10	,,	47	1	Tomoda	Katō
,,	,,	18	35	,,	46	43	,,	,,
,,	,,	19	38	,,	46	33	Katō	Tomoda
,,	,,	21	9	,,	49	46	,,	,,
,,	,,	22	42	,,	47	2	,,	Katō
,,	4th	1	8	,,	45	1	,,	,,
,,	,,	2	47	,,	44	3	,,	,,
,,	,,	5	32	,,	44	8	,,	,,
,,	,,	7	21	,,	43	28	,,	,,
,,	,,	8	17	,,	42	0	,,	Tomoda
,,	,,	9	57	,,	44	25	Tomoda	Katō
,,	,,	12	21	,,	54	35	Katō	Tomoda
,,	,,	13	34	,,	51	56	Tomoda	Katō
,,	,,	14	46	,,	51	10	Katō	Tomoda
,,	,,	15	44	,,	50	5	,,	,,
,,	,,	16	46	,,	47	58	Tomoda	Katō
,,	,,	17	44	,,	47	18	Katō	,,
,,	,,	18	31	,,	48	18	Tomoda	Tomoda
,,	,,	20	10	,,	48	29	,,	,,
Mean				4	16′	41″		

δ = 4 46′.68

Reduction to 1895.0 = −1.45

,, ,, sea level = 0.00

δ = 4 45′.2

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	3rd	18h	7m	—	48°	50′.2	Katō	Tomoda
,,	4th	6	56	—	,,	45.5	Tomoda	Katō
,,	,,	11	0	—	,,	41.9	,,	Tomoda
,,	,,	16	13	—	,,	46.8	Katō	,,
,,	,,	17	21	—	,,	45.8	Tomoda	Katō
Mean					48°	46′.0		

θ = 48° 46′.00

Reduction to 1895.0 = 1.66

,, ,, sea level = −0.01

θ = 48° 47′.7

HORIZONTAL INTENSITY (*H*)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	3rd	20h	33m	0.30208	425.40	23.9 C	5s.8063	23°.9 C	6 3′40″.0	13 43′48″.1	23°.8 C	Tomoda / Katō	Katō / Tomoda
,,	4th	8	21	0.30323	424.62	25.5	5.8052	24.2	6 2 17.5	13 40 51.3	26.9	Tomoda	Katō
,,	,,	14	26	0.30266	422.88	29.2	5.8252	30.2	6 1 55.6	13 40 16.2	28.3	,, / Katō	,, / Tomoda
,,	,,	19	38	0.30306	425.66	22.0	5.8088	22.1	6 4 0.6	13 45 9.4	21.9	Tomoda / Katō	Katō / Tomoda
Mean				0.30276									

H = 0.30276

Reduction to 1895.0 = −2061

,, ,, sea level = 51

H = 0.30256

228. SASAYAMA.

Hōmeigizyuku (鳳 鳴 義 塾)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	7th	13h	54m	4	54′	10″	Katō	Tomoda
,,	,,	15	28	,,	53	33	,,	Katō
,,	,,	17	15	,,	50	39	,,	Tomoda
,,	,,	18	11	,,	49	31	,,	,,
,,	,,	19	36	,,	50	8	Tomoda	,,
,,	,,	21	23	,,	50	4	Katō	Katō
,,	,,	22	25	,,	50	8	,,	,,
,,	8th	3	11	,,	49	21	,,	,,
,,	,,	6	4	,,	48	3	,,	,,
,,	,,	7	35	,,	48	10	,,	,,
,,	,,	9	12	,,	47	8	Tomoda	Tomoda
,,	,,	10	1	,,	48	12	,,	Katō
,,	,,	11	1	,,	49	17	,,	,,
,,	,,	12	30	,,	51	56	,,	,,
,,	,,	13	35	,,	52	16	Katō	Tomoda
,,	,,	14	56	,,	51	44	Tomoda	Katō
,,	,,	16	12	,,	50	30	Katō	Tomoda
,,	,,	17	50	,,	49	19	,,	,,
,,	,,	19	15	,,	49	46	,,	Katō
Mean				4	49′	52″		

δ = 4° 49′.87
Reduction to 1895.0 = −1.43
,, ,, sea level = −0.02
δ = 4° 48′.4

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour Mean Local Time.				Needle No.	θ		Observer	Recorder
July	7th	17h	32m	– –	48	53′.9	Tomoda	Katō
,,	8th	10	41	– –	,,	55.1	Katō	Tomoda
,,	,,	15	46		,,	55.9	Tomoda	Katō
Mean					48	55′.0		

θ = 48° 55′.0
Reduction to 1895.0 = 2.28
,, ,, sea level = −0.03
θ = 48° 57′.3

HORIZONTAL INTENSITY (H)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	7th	19h	4m	0.30314	423.74	26.0C	5.8148 s	26°.2C	6° 2′35″.6	13° 42′26″.2	25.9C	Tomoda Katō	Katō Tomoda
,,	8th	8	42	0.30207	424.33	24.8	5.8156	24.8	6 3 6.2	13 42 41.2	24.7	Tomoda Katō	Katō Tomoda
,,	,,	14	29	0.30283	423.89	26.6	5.8165	26.5	6 2 30.6	13 41 28.8	26.7	Tomoda Katō	Katō Tomoda
,,	,,	18	49	0.30232	424.40	23.6	5.8183	23.8	6 3 38.1	13 43 58.1	23.5	Tomoda Katō	Katō Tomoda
Mean				0.30259									

H = 0.30259
Reduction to 1895.0 = −2324
,, ,, sea level = 318
H = 0.30239

229. MIYATU.

High Common School (第一高等小學校運動場)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour. (Mean Local Time.)				δ			Observer	Recorder
July	10th	12h	10m	4°	53′	20″	Katō	Tomoda
〃	〃	13	13	〃	54	40	〃	〃
〃	〃	14	57	〃	53	30	Tomoda	Katō
〃	〃	16	29	〃	53	2	Katō	〃
〃	〃	17	44	〃	52	19	〃	Tomoda
〃	〃	18	52	〃	52	15	〃	Katō
〃	〃	20	20	〃	52	4	〃	〃
〃	〃	21	24	〃	52	34	Tomoda	Tomoda
〃	11th	1	4	〃	52	10	〃	〃
〃	〃	4	56	〃	50	35	〃	〃
〃	〃	6	33	〃	48	27	〃	〃
〃	〃	7	45	〃	48	23	Katō	〃
〃	〃	8	55	〃	49	14	〃	Katō
〃	〃	10	3	〃	51	44	〃	〃
〃	〃	11	13	〃	54	20	〃	〃
〃	〃	13	5	〃	56	23	〃	Tomoda
〃	〃	13	31	〃	56	23	〃	〃
〃	〃	14	50	〃	55	22	Tomoda	Katō
〃	〃	15	44	〃	55	23	〃	〃
Mean				4°	52′	9″		

δ = 4° 52′.15
Reduction to 1895.0 = −1.71
〃 〃 sea level = 0.00
δ = 4° 50′.4

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ	Observer	Recorder
July	10th	17h	20m	—	49° 24′.5	Tomoda	Katō
〃	11th	5	56	—	〃 24.3	〃	Tomoda
〃	〃	10	36	—	〃 27.5	Katō	Katō
Mean					49° 25′.4		

θ = 49° 25′.40
Reduction to 1895.0 = 2.75
〃 〃 sea level = 0.00
θ = 49° 28′.2

HORIZONTAL INTENSITY (H)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	10th	14h	30m	0.30196	423.19	28°.4C	5.8304 s	28°.7C	6 2′59″.4	13 42′31″.9	28.1C	Tomoda Katō	Katō Tomoda
〃	〃	20	12	0.30172	424.65	21.9	5.8217	22.4	6 4 38.1	13 46 23.1	21.5	Tomoda Katō	Katō
〃	11th	8	27	0.30181	424.27	23.8	5.8233	23.5	6 4 7.5	13 45 14.4	24.0	Tomoda Katō	〃 Tomoda
〃	〃	14	17	0.30182	422.59	28.8	5.8367	29.4	6 2 46.3	13 42 6.3	28.3	Tomoda Katō	Katō Tomoda
Mean				0.30183									

H = 0.30183
Reduction to 1895.0 = −2366
〃 〃 sea level = 000
H = 0.30159

230. OBAMA.

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	12th	17h	5m	4°	59′	34″	Katō	Tomoda
,,	,,	18	2	,,	57	56	Tomoda	Katō
,,	,,	19	34	,,	56	54	Katō	Tomoda
,,	,,	20	42	,,	57	56	,,	Katō
,,	,,	21	27	,,	58	15	,,	,,
,,	13th	0	11	,,	58	12	,,	,,
,,	,,	1	41	,,	57	36	,,	,,
,,	,,	6	5	,,	55	29	,,	,,
,,	,,	7	28	,,	53	16	,,	,,
,,	,,	8	10	,,	54	14		
,,	,,	9	19	,,	55	35	Tomoda	Tomoda
,,	,,	10	30	,,	54	7	,,	,,
,,	,,	11	58	,,	58	50	,,	Katō
,,	,,	13	17	5	2	25	Katō	Tomoda
,,	,,	14	38	,,	2	7	Tomoda	Katō
,,	,,	15	46	,,	1	2	Katō	Tomoda
,,	,,	16	39	5	59	42	,,	,,
,,	,,	17	51	,,	57	21	Tomoda	Katō
Mean				4°	57′	49″		

$\delta = 4°\ 57'.82$

Reduction to 1895.0 = -1.73

,, ,, sea level = 0.00

$\delta = 4°\ 56'.1$

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder.
July	13th	6h	59m	—	49°	24.0	Katō	Katō
,,	,,	11	31	—	,,	20.7	Tomoda	Tomoda
,,	,,	17	14	—	,,	17.0	,,	Katō
,,	,,	18	27	—	,,	18.0	Katō	Tomoda
Mean					49°	19.9		

$\theta = 49°\ 19'.9$

Reduction to 1895.0 = 2.14

,, ,, sea level = 0.00

$\theta = 49\ \ 22.0$

HORIZONTAL INTENSITY (*H*)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vib^n	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	12th	19h	6m	0.30077	423.45	26°.0 C	s 5.8400	26°.2 C	6° 4′29″.4	13 45′42″.5	25°.8 C	Tomoda / Katō	Katō
,,	13th	8	46	0.30132	422.91	28.6	5.8363	27.7	6 3 8.8	13 42 18.1	29.5	Tomoda / Katō	,, / Tomoda
,,	,,	14	12	0.30174	422.30	31.1	5.8395	31.7	6 2 21.9	13 40 55.0	30.5	Tomoda / Katō	Katō / Tomoda
Mean				0.30096									

$H = 0.30096$

Reduction to 1895.0 = -2159

,, ,, sea level = 000

$H = 0.30074$

231. SAKAI.

Ōhama Park (大濱四丁遊園地)

DECLINATION (δ)
Observations of the Kinki Party, 1893.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	17th	18h	30m	4	31′	31″	Katō	Katō
,,	,,	19	38	,,	31	2	,,	,,
,,	,,	20	38	,,	31	18	,,	,,
,,	,,	22	7	,,	31	56	Tomoda	,,
,,	,,	23	52	,,	31	7	Katō	,,
,,	18th	1	7	,,	31	22	,,	,,
,,	,,	5	43	,,	31	7	,,	,,
,,	,,	7	12	,,	29	37	Tomoda	Tomoda
,,	,,	8	11	,,	29	9	Katō	,,
,,	,,	9	19	,,	28	34	Tomoda	Katō
,,	,,	10	18	,,	29	39	Nakamura	,,
,,	,,	11	16	,,	31	5	Katō	Nakamura
,,	,,	12	9	,,	32	29	Tomoda	Tomoda
,,	,,	13	11	,,	34	7	Katō	Nakamura
,,	,,	14	12	,,	34	37	Nakamura	Tomoda
,,	,,	15	19	,,	34	26	,,	Katō
,,	,,	16	24	,,	31	11	,,	Nakamura
,,	,,	17	4	,,	33	45	Katō	,,
,,	,,	18	20	,,	32	19	Nakamura	,,
,,	,,	19	29	,,	31	59	,,	,,
Mean				4°	31′	38″		

δ = 4° 31′.63
Reduction to 1895.0 = −1.21
,, ,, sea level = 0.00
δ = 4° 30′.4

DIP (θ)
Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	18th	10h	44m	—	48	44′.2	Tomoda	Katō
,,	,,	14	40	—	,,	31.2	Nakamura	,,
,,	,,	15	58	—	,,	33.1	Katō	Nakamura
,,	,,	18	59	—	,,	32.3	Tomoda	,,
Mean					48°	35′.2		

θ = 48° 35′.2
Reduction to 1895.0 = 1.70
,, ,, sea level = 0.00
θ = 48° 36′.9

HORIZONTAL INTENSITY (H)
Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	18th	8h	51m	0.30398	422.57	29°.3C	5.8148 s	29°.3C	5 59 53.1	13 35 18.1	29.3C	Tomoda Katō	Katō Tomoda
,,	,,	13	50	0.30382	420.95	33.4	5.8292	34.1	5 58 45.0	13 32 37.5	32.7	,, Nakamura	Nakamura Katō
,,	,,	17	57	0.30427	422.55	29.7	5.8136	30.4	5 59 41.2	13 34 50.0	29.0	,, Katō	,, Nakamura
,,	,,	20	22	0.30432	422.66	28.5	5.8113	28.7	5 59 47.5	13 35 18.8	28.2	,, Tomoda	,, Katō
Mean				0.30410									

H = 0.30410
Reduction to 1895.0 = −2270
,, ,, sea level = 000
H = 0.30387

232. IKUNO.

Common School (學 校 敷 地)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	20th	11h	3m	4°	51′	48″	Katō	Nakamura
"	"	12	3	"	52	44	Nakamura	Katō
"	"	12	58	"	53	38	"	Nakamura
"	"	14	8	"	53	22	Katō	Katō
"	"	15	37	"	54	2	"	Nakamura
"	"	16	14	"	53	47	Nakamura	Katō
"	"	16	35	"	53	32	Katō	"
"	"	17	33	"	52	37	"	Nakamura
"	"	18	15	"	52	4	Nakamura	Katō
"	"	19	11	"	51	56	"	"
"	"	20	14	"	52	16	"	Nakamura
"	"	21	17	"	52	29	"	"
"	"	23	43	"	52	36	"	"
"	21st	4	29	"	50	31	"	"
"	"	5	27	"	50	16	"	"
"	"	6	32	"	49	9	"	"
"	"	7	30	"	48	56	Katō	"
"	"	8	30	"	49	42	"	Katō
"	"	9	30	"	49	16	"	"
"	"	10	26	"	51	53	"	"
"	"	11	35	"	52	47	"	"
"	"	12	34	"	53	20	"	"
"	"	13	34	"	52	59	"	"
"	"	14	36	"	51	8	Nakamura	"
"	"	15	16	"	51	29	"	Kato
"	"	16	21	"	54	11	Katō	Nakamura
"	"	17	26	"	53	37	"	Katō
"	"	18	15	"	53	9	Nakamura	Nakamura
Mean				4	51′	49″		

$\delta = 4°\ 51'.82$

Reduction to 1895.0 = −1.48

" " sea level = −0.02

$\delta = 4°\ 50'.3$

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	20th	15h	7m	—	49°	11′.5	Nakamura	Katō
"	"	17	11	—	"	10.7	Katō	Nakamura
"	"	20	53	—	"	11.1	"	Katō Nakamura
"	21st	5	57	—	"	2.1	Nakamura	"
"	"	12	52	—	"	0.1	"	Katō
"	"	13	59	—	"	3.6	Katō	Nakamura
"	"	16	41	—	"	5.2	Nakamura	Katō
Mean					49°	6′.4		

$\theta = 49°\ 6'.4$

Reduction to 1895.0 = 2.79

" " sea level = −0.03

$\theta = 49°\ 9'.2$

HORIZONTAL INTENSITY (H)

Observations of the Kinki Party, 1895.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_0	Observer	Recorder
July	20th	13h	42m	0.30184	422.93	25.3C	s 5.8335	25.6C	6° 2′ 50″.6	13° 42′ 0″.6	25.1C	Katō Nakamura	Nakamura Katō
"	"	18	45	0.30182	423.19	25.1	5.8311	25.2	6 3 3.8	13 42 30.6	25.1	" Katō	" Nakamura
"	"	21	55	0.30175	423.55	24.5	5.8299	24.9	6 3 20.6	13 42 54.9	24.2	" Nakamura	" Katō
"	21st	8	6	0.30209	423.71	24.7	5.8248	24.6	6 3 4.4	13 42 25.6	24.8	" Katō	" Nakamura
Mean				0.30187									

$H = 0.30187$

Reduction to 1895.0 = −2527

" " sea level = 320

$H = 0.30165$

233. TOYOOKA.

Middle School (豊岡尋常中學校敷地)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	23rd	7h	44m	4°	58′	0″	Katō	Nakamura
,,	,,	9	9	5	0	26	Tomoda	Katō
,,	,,	9	54	,,	1	56	Nakamura	Nakamura
,,	,,	11	1	,,	4	6	Katō	,,
,,	,,	11	54	,,	4	57	Tomoda	,,
,,	,,	12	34	,,	5	14	Nakamura	Katō
,,	,,	13	43	,,	5	14	Katō	Nakamura
,,	,,	14	54	,,	4	18	Tomoda	,,
,,	,,	15	58	,,	3	54	Katō	Tomoda
,,	,,	17	15	,,	2	36	Tomoda	Katō
,,	,,	18	46	,,	1	44	,,	Tomoda
,,	,,	19	47	,,	2	9	Katō	Nakamura
,,	,,	22	1	,,	1	43	,,	,,
,,	24th	0	37	,,	1	13	Tomoda	Tomoda
,,	,,	5	8	4	58	38	,,	,,
,,	,,	6	35	,,	56	44	,,	,,
Mean				5°	1′	31″		

$\delta = 5°\ 1'.57$

Reduction to 1895.0 = −1.65

,, ,, sea level = −0.00

$\delta = 4°\ 59'.9$

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	23rd	9h	37m	—	49°	31′.1	Nakamura	Tomoda
,,	,,	11	33	—	,,	28.3	Katō	,,
,,	,,	18	8	—	,,	25.2	Tomoda	,,
,,	,,	20	40	—	,,	25.8	Katō	Katō
,,	24th	5	58	—	,,	24.7	Tomoda	Tomoda
Mean					49°	27′.0		

$\theta = 49°\ 27'.0$

Reduction to 1895.0 = 3.28

,, ,, sea level = 0.00

$\theta = 49°\ 30'.3$

HORIZONTAL INTENSITY (H)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 23rd 8h 35m	0.30200	421.06	32°.6C	5.8430 s	32°.3C	6° 1′ 1″.9	13°38′18″.8	33°.0C	Tomoda, Katō	Katō, Tomoda
,, ,, 13 21	0.30208	419.56	37.2	5.8556	37.9	5 59 35.6	13 34 41.9	36.7	,, Nakamura	Nakamura, Katō
,, ,, 16 40	0.30232	419.85	35.8	5.8521	36.9	5 59 51.9	13 35 35.6	34.7	Nakamura, Tomoda	Katō, Nakamura
Mean	0.30213									

H = 0.30213

Reduction to 1895.0 = −2604

,, ,, sea level = 000

H = 0.30187

234. TOTTORI.

Normal School (鳥取尋常師範學校)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	25th	12h	17m	5°	10′	42″	Katō	Tomoda
..	..	12	50	..	11	10	Nakamura	Katō
..	..	14	1	..	11	28	..	Tomoda
..	..	14	44	..	10	19	Tomoda	Katō
..	..	15	57	..	7	51	Katō	Nakamura
..	..	16	39	..	6	48	Nakamura	Katō
..	..	17	34	..	6	3	Tomoda	Nakamura
..	..	18	26	..	5	51	Nakamura	..
..	..	19	12	..	6	26	..	..
..	..	21	14	..	5	58	Katō	Tomoda
..	..	22	26	..	6	20	Nakamura	Nakamura
..	26th	0	30	..	5	5	..	..
..	..	3	22	..	4	27	..	..
..	..	5	17	..	4	6	..	..
..	..	6	33	..	1	54	..	..
..	..	7	32	..	0	50	..	..
..	..	8	15	..	1	38	Katō	Tomoda
..	..	9	24	..	3	33	..	..
..	..	10	35	..	7	6	Tomoda	..
..	..	11	19	..	8	53	..	..
..	..	12	3	..	10	12	..	..
Mean				5	5′	59″		

δ = 5° 5′.98

Reduction to 1895.0 = −1.58

" " sea level = 0.00

δ = 5° 4′.4

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	25th	14h	24m		49°	39′.9	Katō	Tomoda
..	..	17	9		..	42.8	Tomoda	Katō
..	26th	5	15		..	41.8	Nakamura	Nakamura
..	..	9	59		..	41.5	Tomoda	Katō
Mean					49°	41′.5		

θ = 49° 41′.5

Reduction to 1895.0 = 3.77

" " sea level = 0.00

θ = 49° 45′.3

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibratoin only by assuming Value of M.*)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	25th	13h	38m	*0.30189	421.04	32.1C	5.8389s	32.9C	(6° 0′56″.3	13 37′18″.1	32.1C)	Tomoda / Nakamura	Nakamura / Tomoda
..	..	18	5	0.30169	421.29	30.3	5.8475	31.2	6 1 48.1	13 39 48.1	29.4	.. / Katō	Katō / Nakamura
..	..	21	59	0.30197	423.50	21.3	5.8279	24.6	6 3 16.2	13 43 8.4	21.1	Tomoda / Katō	Katō / Tomoda
..	26th	9	5	0.30162	421.10	31.6	5.8469	31.2	6 1 21.9	13 38 48.8	32.0	Tomoda / Katō	Katō / Tomoda
Mean				0.30179									

H = 0.30179

Reduction to 1895.0 = −2815

" " sea level = 000

H = 0.30151

235. HASIZU.

Ruin of Fort (舊 臺 場)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 27th 0h 57m	5° 2′ 23″	Katō	Katō
" " 1 19	" 2 27	"	"
" " 4 28	" 1 23	"	"
" " 6 58	4 58 38	"	"
" " 7 28	" 58 52	Tomoda	Nakamura
" " 9 2	" 59 52	Nakamura	Tomoda
" " 9 37	5 0 41	Tomoda	Nakamura
" " 10 43	" 2 45	Nakamura	Tomoda
" " 11 34	" 4 10	Tomoda	"
" " 12 36	" 6 8	Katō	Nakamura
" " 13 21	" 7 8	Nakamura	Katō
" " 14 11	" 6 51	Katō	"
" " 15 11	" 4 59	Nakamura	"
" " 16 10	" 2 59	Katō	Nakamura
" " 17 2	" 1 51	Nakamuaa	Katō
" " 19 2	" 2 53	"	Nakamura
" " 19 55	" 3 5	"	"
" " 20 37	" 2 55	Katō	"
" " 21 40	" 2 20	Nakamura	Katō
" " 23 6	" 3 5	Katō	Nakamura
Mean	5° 2′ 29″		

$\delta = 5°$ 2′.48

Reduction to 1895.0 = −1.49

" " sea level = 0.00

$\delta = 5°$ 1′.0

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 27th 10h 16m	—	49° 41′.0	Tomoda	Tomoda
" " 13 41	—	" 46.5	Nakamura	Katō
" " 15 35	—	" 42.2	Katō	Nakamura
" " 19 40	—	" 46.3	Nakamura	"
" " 22 19	—	" 43.8	"	"
Mean		49° 45′.0		

$\theta = 49°$ 45′.0

Reduction to 1895.0 = 4.08

" " sea level = 0.00

$\theta = 49°$ 49′.1

HORIZONTAL INTENSITY (H)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 27th 9h 5m	0.30238	422.75	26°.3C	s 5.8281	26°.1C	6 1′56″.2	13°40′ 0″.6	26°.6C	Tomoda	Nakamura
" " 13 3	0.30243	421.16	30.7	5.8407	31.3	6 0 45.0	13 37 27.5	30.2	Nakamura Katō	Katō Nakamura
" " 15 46	0.30233	421.51	28.4	5.8397	29.3	6 1 20.0	13 38 49.4	27.5	" Nakamura	" Katō
" " 21 21	0.30219	422.90	25.4	5.8299	25.5	6 2 23.1	13 41 0.0	25.3	" Katō	" Nakamura
Mean	0.30233									

$H =$ 0.30233

Reduction to 1895.0 = −2936

" " sea level = 000

$H =$ 0.30204

236. TUYAMA.

Middle School (津山尋常中學校敷地)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	29th	18h	54m	4°	48′	52″	Katō	Nakamura
,,	,,	19	18	,,	48	31	Nakamura	Katō
,,	,,	20	18	,,	49	4	Katō	Tomoda
,,	,,	22	3	,,	48	44	Tomoda	,,
,,	,,	22	57	,,	48	10	,,	,,
,,	30th	1	20	,,	47	28	,,	,,
,,	,,	5	52	,,	46	7	,,	,,
,,	,,	6	54	,,	45	37	Katō	,,
,,	,,	7	30	,,	45	14	Nakamura	Katō
,,	,,	8	25	,,	44	54	Katō	Nakamure
,,	,,	9	25	,,	45	7	Nakamura	Katō
,,	,,	10	19	,,	46	23	Katō	Nakamura
,,	,,	11	18	,,	47	54	Nakamura	Katō
,,	,,	12	31	,,	49	42	Katō	Nakamura
,,	,,	13	11	,,	50	0	Tomoda	Katō
,,	,,	14	9	,,	50	5	Katō	Tomoda
,,	,,	15	8	,,	49	19	Nakamura	,,
,,	,,	16	11	,,	49	4	Katō	Tomoda
,,	,,	17	15	,,	48	11	Tomoda	Nakamura
,,	,,	18	13	,,	48	28	Nakamura	Katō
,,	,,	19	29	,,	48	15	Katō	Nakamura
Mean				4°	47′	42″		

$\delta = 4°\ 47'.70$
Reduction to 1895.0 = −1.28
,, ,, sea level = −0.01
$\delta = 4°\ 46'.4$

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	30th	0h	46m	—	48°	54′.6	Tomoda	Tomoda
,,	,,	8	51	—	49	8.1	Nakamura	Katō
,,	,,	11	3	—	,,	7.5	Katō	Nakamura
,,	,,	14	45	—	,,	3.1	Tomoda	,,
,,	,,	15	41	—	,,	1.9	Katō	Tomoda
,,	,,	16	31	—	,,	4.3	Nakamura	Katō
,,	,,	19	53	—	,,	3.7	,,	,,
Mean					49°	2′.9		

$\theta = 49°\ 2'.9$
Reduction to 1895.0 = 3.64
,, ,, sea level = −0.01
$\theta = 49°\ 6'.5$

HORIZONTAL INTENSITY (H)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 29th 19h 57m	0.30373	421.80	27°.4C	5s.8227	27°.6C	5°59′34″.4	13°34′31″.2	27°.3C	Katō, Nakamura	Nakamura, Katō
,, 30th 8 1	0.30412	421.81	28.9	5.8176	28.4	5 59 1.9	13 33 27.5	29.3	,, Katō	,, Nakamura
,, ,, 13 50	0.30407	420.55	32.3	5.8281	32.5	5 58 8.1	13 31 25.0	32.2	Tomoda, Katō	Katō, Tomoda
,, ,, 18 22	0.30389	422.37	26.5	5.8175	26.8	5 59 55.0	13 35 19.0	26.3	Tomoda	Nakamura
Mean	0.30395									

$H = 0.30395$
Reduction to 1895.0 = −2904
,, ,, sea level = 115
$H = 0.30367$

237. OKAYAMA.

Bleaching ground on river bank (西大河々畔布晒場)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	1st	11h	6m	4°	40′	56″	Nakamura	Tomoda
..	..	11	27	..	41	26	Tomoda	Nakamura
..	,,	12	25	..	43	18	Katō	,,
..	..	13	34	..	41	7	Nakamura	Tomoda
..	..	14	18	..	41	7	Tomoda	Nakamura
..	..	15	23	..	42	55	Nakamura	,,
..	..	16	20	..	41	45	Katō	Tomoda
..	..	17	20	,,	41	10	Tomoda	Katō
,,	,,	18	14	..	40	34	Katō	..
..	..	19	37	..	41	7	..	,,
,,	,,	21	14	..	38	58	Nakamura	Tomoda
..	..	22	50	,,	40	54	..	Nakamura
..	2nd	0	58	..	40	59	,,	..
..	,,	1	59	..	39	34	..	,,
,,	..	4	2	..	38	41	..	..
,,	..	7	58	..	35	7	..	Katō
..	..	8	30	,,	36	46	Katō	Tomoda
..	..	9	25	..	38	13	Nakamura	,,
,,	,,	10	33	,,	39	59	..	Nakamuru
..	..	11	45	..	41	46	Tomoda	,,
..	..	12	5	,,	42	37	Nakamura	Tomoda
..	,,	13	5	..	44	38	Tomoda	Nakamura
Mean				4°	40′	4″		

δ = 4° 40′.07

Reduction to 1895.0 = −1.01

,, ,, sea level = 0.00

δ = 4° 39′.1

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	1st	11h	14m	—	48°	34′.6	Nakamura	Tomoda
..	,,	19	7	—	,,	34.4	Katō	Katō
..	..	20	44	—	,,	39.1	Tomoda	{ ,, Nakamura Tomoda
..	2nd	6	57	—	..	35.5	Katō	,,
..	..	11	17	—	,,	37.2	Tomoda	,,
Mean					48°	36′.2		

θ = 48° 36′.2

Reduction to 1895.0 = 3.17

,, ,, sea level = 0.00

θ = 48° 39′.4

HORIZONTAL INTENSITY (H)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_v	Observer	Recorder
Aug.	1st	13h	56m	0.30578	420.08	32°.1C	5.8151	32°.2C	5°55′37″.5	13°25′32″.5	32°.1C	{ Katō Nakamura	{ Nakamura Tomoda
,,	,,	16	57	0.30598	420.47	31.1	5.8111	31.5	5 55 55.6	13 26 25.6	30.8	{ Katō Tomoda	{ Nakamura Katō
,,	..	22	29	0.30538	421.27	28.7	5.8104	28.9	5 57 1.9	13 28 30.6	28.5	{ Nakamura Tomoda	{ ,, Nakamura
,,	2nd	9	8	0.30576	420.58	32.2	5.8108	31.9	5 55 58.8	13 26 21.9	32.6	{ ,, Nakamura	{ ,, Tomoda
Mean				0.30572									

H = 0.30572

Reduction to 1895.0 = −2912

,, ,, sea level = 000

H = 0.30543

238. AKŌ.

Old Castle (舊 城 趾)

DECLINATION(δ)
Observations of the Kinki Party, 1895.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug	3rd	9h	35m	4°	43′	56″	Nakamura	Katō
,,	,,	10	35	,,	44	28	Katō	Tomoda
,,	,,	11	28	,,	44	53	Tomoda	Katō
,,	,,	12	24	,,	47	26	Katō	Tomoda
,,	,,	14	1	,,	44	48	Tomoda	Katō
,,	,,	11	35	,,	44	17	Nakamura	,,
,,	,,	16	3	,,	39	33	,,	Tomoda
,,	,,	16	39	,,	39	19	Katō	,,
,,	,,	17	52	,,	38	56	Tomoda	Nakamura
,,	,,	19	2	,,	39	31	Nakamura	,,
,,	,,	20	33	,,	39	59	Katō	,,
,,	,,	21	26	,,	39	31	Tomoda	Katō
,,	,,	23	48	,,	40	27	Katō	,,
,,	4th	0	27	,,	39	45	,,	,,
,,	,,	3	32	,,	39	57	,,	,,
,,	,,	5	25	,,	38	47	,,	,,
,,	,,	6	19	,,	37	53	,,	,,
,,	,,	7	10	,,	37	38	Nakamura	Tomoda
,,	,,	8	22	,,	38	39	Tomoda	Nakamura
,,	,,	9	15	,,	39	17	Katō	Katō
,,	,,	10	27	,,	41	44	Tomoda	Tomoda
,,	,,	11	23	,,	42	52	Katō	,,
,,	,,	12	2	,,	42	49	,,	,,
Mean				4°	40′	20″		

$\delta = 4°\ 40'.33$
Reduction to 1895.0 = -1.18
,, ,, sea level = 0.00
$\delta = 4°\ 39'.2$

DIP (θ)
Observations of the Kinki Party, 1895.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	3rd	11h	2m	—	48	39.8	Tomoda	Katō
,,	,,	15	0	—	,,	37.2	Katō	Tomoda
,,	,,	15	37	—	,,	39.5	Tomoda	Katō
,,	,,	20	0	—	,,	38.8	,,	Tomoda Nakamura
,,	,,	21	52	—	,,	39.0	Nakamura	Tomoda
,,	4th	6	42	—	,,	39.0	Katō	Katō
Mean					48°	38.9		

$\theta = 48°\ 38'.9$
Reduction to 1895.0 = 3.01
,, ,, sea level = 0.00
$\theta = 48°\ 41'.9$

HORIZONTAL INTENSITY (H)
Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 3rd 13h 32m	0.30520	419.99	33°.1C	s 5.8220	33°.6C	5°56′26″.9	13°27′38″.1	32°.7C	Tomoda Katō	Katō Tomoda
,, ,, 17 22	0.30524	420.11	32.6	5.8213	33.5	5 56 33.1	13 27 47.5	31.7	Nakamura Tomoda	Katō Nakamura
,, ,, 21 2	0.30505	421.32	28.4	5.8133	28.6	5 57 50.6	13 30 56.9	28.2	Katō Nakamura	,, Katō
,, 4th 7 56	0.30516	421.76	28.3	5.8087	28.4	5 57 51.2	13 30 39.4	28.3	Tomoda	Nakamura
Mean	0.30516									

H = 0.30516
Reduction to 1895.0 = -2798
,, ,, sea level = 000
H = 0.30488

239. AKASI.

(衛濤館ノ東五十米許ナル海濱)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	4th	20h	35m	4°	37′	36″	Nakamura	Tomoda
,,	,,	21	53	,,	37	18	,,	Nakamura
,,	5th	0	8	,,	36	16	,,	,,
,,	,,	0	49	,,	36	30	,,	,,
,,	,,	4	19	,,	36	15	,,	,,
,,	,,	5	21	,,	35	32	,,	,,
,,	,,	6	22	,,	34	7	,,	,,
,,	,,	7	18	,,	33	46	,,	,,
,,	,,	7	49	,,	34	28	Katō	Tomoda
,,	,,	8	56	,,	36	1	Tomoda	Katō
,,	,,	9	54	,,	37	22	Katō	Tomoda
,,	,,	10	56	,,	38	39	Nakamura	,,
,,	,,	11	55	,,	38	51	Katō	Nakamura
,,	,,	12	56	,,	38	51	Tomoda	,,
,,	,,	14	1	,,	38	45	Nakamura	Katō
,,	,,	15	12	,,	38	37	,,	Nakamura
,,	,,	16	16	,,	37	52	,,	,,
,,	,,	17	18	,,	37	23	,,	Tomoda
,,	,,	18	20	,,	37	54	,,	,,
,,	,,	19	40	,,	37	40	,,	Nakamura
,,	,,	20	39	,,	37	29	,,	,,
Mean				4°	37′	4″		

δ = 4° 37′.07
Reduction to 1895.0 = −1.24
,, ,, sea level = 0.00
δ = 4° 35′.8

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	5th	4h	58m	—	48°	25′.5	Nakamura	Nakamura
,,	,,	6	56	—	,,	24.8	,,	,,
,,	,,	9	33	—	,,	31.7	Tomoda	Katō
,,	,,	10	20	—	,,	25.1	,,	,,
,,	,,	11	24	—	,,	26.2	Katō	Tomoda
,,	,,	16	51	—	,,	25.3	Tomoda	Nakamura
,,	,,	20	14	—	,,	29.0	Nakamura	,,
Mean					48°	26′.8		

θ = 48° 26′.8
Reduction to 1895.0 = 2.23
,, ,, sea level = 0.00
θ = 48° 29′.0

HORIZONTAL INTENSITY (H)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	4th	21h	28m	0.30488	421.60	26°.8C	5s.8124	26°.8C	5°58′16″.9	13°31′59″.4	26°.9C	Katō Nakamura	Nakamura Katō
,,	5th	8	25	0.30459	421.72	27.6	5.8153	28.0	5 58 34.4	13 32 18.8	27.2	Tomoda Katō	,, Tomoda
,,	,,	13	43	0.30477	421.08	29.7	5.8181	30.1	5 57 48.1	13 30 32.5	29.4	Nakamura Katō	Katō Nakamura
,,	,,	17	58	0.30482	420.95	28.9	5.8183	29.3	5 57 46.2	13 30 43.8	28.6	Tomoda	,,
Mean				0.30476									

H = 0.30476
Reduction to 1895.0 = −2506
,, ,, sea level = 000
H = 0.30451

240. NARA.

Nara Park (奈 良 公 園)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	6th	18h	39m	4°	28′	46″	Nakamura	Katō
,,	,,	19	21	,,	28	26	Katō	,,
,,	,,	19	58	,,	28	42	Tomoda	Nakamura
,,	,,	21	29	,,	28	30	Nakamura	Tomoda
,,	,,	22	25	,,	28	39	Katō	,,
,,	,,	23	9	,,	28	50	,,	Katō
,,	7th	1	35	,,	27	40	,,	,,
,,	,,	4	11	,,	25	33	,,	,,
,,	,,	5	26	,,	25	3	,,	,,
,,	,,	6	33	,,	24	1	,,	,,
,,	,,	7	31	,,	28	38	Tomoda	Nakamura
,,	,,	7	46	,,	28	40	,,	,,
,,	,,	8	59	,,	28	28	Nakamura	Tomoda
,,	,,	9	29	,,	28	18	,,	,,
,,	,,	10	38	,,	30	45	Katō	Nakamura
,,	,,	11	29	,,	32	57	,,	Katō
,,	,,	12	32	,,	32	29	,,	,,
,,	,,	12	51	,,	33	10	,,	,,
,,	,,	13	29	,,	33	23	Nakamura	Nakamura
,,	,,	14	9	,,	35	16	Katō	Tomoda
,,	,,	15	19	,,	31	35	Tomoda	Katō
,,	,,	15	10	,,	31	1	Nakamura	Nakamura
,,	,,	16	42	,,	31	24	Katō	Tomoda
,,	,,	17	41	,,	31	13	Tomoda	Nakamura
,,	,,	18	55	,,	31	6	Nakamura	Tomoda
Mean				4°	28′	55″		

δ = 4° 28′.92
Reduction to 1895.0 = −1.33
,, ,, sea level = 0.00
δ = 4° 27′.6

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	6th	22h	6m	—	48°	36′.4	Nakamura	Tomoda
,,	7th	7	1	—	,,	32.5	Katō	Katō
,,	,,	10	13	—	,,	34.9	Tomoda	Nakamura
,,	,,	16	13	•	,,	48.0	Nakamura	,, Katō
Mean					48°	38′.0		

θ = 48° 38′.0
Reduction to 1895.0 = 1.28
,, ,, sea level = 0.00
θ = 48° 39′.3

HORIZONTAL INTENSITY.

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections		Temp. t_D	Observer	Recorder
									φ_1	φ_2			
Aug.	6th	21h	8m	0.30302	421.29	28.7C	s 5.8340	29.1C	6° 0′ 7″.5	13°35′58″.8	28.4C	Tomoda	Nakamura
,,	7th	8	40	0.30284	421.15	29.4	5.8344	28.9	5 59 56.2	13 35 31.9	30.0	,,	,,
,,	,,	14	51	0.30264	419.08	34.3	5.8540	35.3	5 58 53.1	13 33 25.0	33.4	{ Tomoda Katō	{ Katō Tomoda
,,	,,	19	33	*0.30233	420.72	29.7	5.8555	31.9	(6 0 15.6	13 36 19.0	29.7)	{ ,, Nakamura	{ Nakamura Katō
Mean				0.30271									

H = 0.30271
Reduction to 1895.0 = −2160
,, ,, sea level = 76
H = 0.30250

241. KAMIITI.

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	8th	16h	4m	4°	30′	7″	Katō	Tomoda
,,	,,	16	54	,,	29	26	Tomoda	Katō
,,	,,	18	15	,,	28	48	Nakamura	,,
,,	,,	19	16	,,	29	2	Tomoda	Tomoda
,,	,,	20	16	,,	28	47	Nakamura	Nakamura
,,	,,	20	48	,,	28	51	,,	Tomoda
,,	,,	21	58	,,	28	0	,,	Nakamura
,,	9th	0	4	,,	28	20	,,	,,
,,	,,	1	0	,,	28	4	,,	,,
,,	,,	2	51	,,	26	50	,,	,,
,,	,,	4	25	,,	27	9	,,	,,
,,	,,	5	49	,,	25	15	,,	,,
,,	,,	6	49	,,	24	49	,,	,,
,,	,,	7	50	,,	24	54	,,	Tomoda
,,	,,	9	4	,,	25	59	Katō	,,
,,	,,	10	5	,,	27	11	,,	Katō
,,	,,	11	23	,,	29	53	Tomoda	,,
,,	,,	12	26	,,	31	13	Katō	,,
,,	,,	13	26	,,	31	14	Tomoda	,,
,,	,,	14	29	,,	30	15	Katō	Tomoda
,,	,,	15	7	,,	30	5	Tomoda	Katō
,,	,,	15	33	,,	29	49	Katō	,,
,,	,,	15	56	,,	29	35	,,	,,
,,	,,	16	41	,,	29	17	,,	Tomoda
Mean				4°	28′	2″		

$\delta = 4°\ 28'.03$

Reduction to 1865.0 = −1.16

,, ,, sea level = −0.01

$\delta = 4°\ 26'.9$

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	8th	19h	13m	—	48°	1.6	Katō	Nakamura
,,	9th	0	35		,,	5.2	Nakamura	,,
,,	,,	6	16		47	59.7	,,	,,
,,	,,	10	55	—	48	2.8	Tomoda	Katō
,,	,,	14	3	—	,,	3.0	Katō	Tomoda
Mean					48°	2.5		

$\theta = 48°\ 2'.50$

Reduction to 1895.0 = 0.96

,, ,, sea level = −0.02

$\theta = 48°\ 3'.4$

HORIZONTAL INTENSITY (*H*)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	8th	18h	56m	0.30486	420.26	30°.7 C	5.8227 s	31°.2 C	5°57′ 3″.8	13°29′ 0″.0	30°.4 C	Nakamura Katō	Katō Nakamura
,,	,,	22	37	0.30498	421.26	27.4	5.8147	27.6	5 57 50.6	13 30 53.1	27.2	Tomoda	,,
,,	9th	9	41	0.30430	421.93	25.7	5.8161	25.9	5 58 54.4	13 32 48.8	25.6	,,	Katō
,,	,,	13	5	0.30409	420.67	29.5	5.8221	29.6	5 57 26.3	13 29 29.4	29.4	,, Katō	,, Tomoda
Mean				0.30468									

H = 0.30468

Reduction to 1895.0 = −2151

,, ,, sea level = 188

H = 0.30448

242. MYŌZI.

(戸長役場裏, 河原ノ石ノ上)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	10th	14h	24m	4	28′	45″	Tomoda	Nakamura
,,	,,	11	18	,,	30	8	Nakamura	Tomoda
,,	,,	12	28	,,	31	43	Katō	Nakamura
,,	,,	13	40	,,	33	10	Tomoda	Katō
,,	,,	14	41	,,	30	30	Nakamura	,,
,,	,,	15	15	,,	29	7	Katō	,,
,,	,,	16	28	,,	27	23	Nakamura	{ Tomoda Nakamura
,,	,,	17	20	,,	25	43	,,	Tomoda
,,	,,	18	32	,,	25	3	Tomoda	Nakamura
,,	,,	19	16	,,	26	33	Nakamura	,,
,,	,,	20	26	,,	27	23	Tomoda	Tomoda
,,	,,	20	48	,,	27	8	Nakamura	,,
,,	,,	21	56	,,	27	57	Tomoda	Nakamura
,,	,,	23	46	,,	27	50	,,	Tomoda
,,	11th	2	51	,,	27	50	,,	,,
,,	,,	5	20	,,	26	42	,,	,,
,,	,,	6	37	,,	25	27	,,	,,
,,	,,	7	40	,,	25	25	Nakamura	Nakamura
,,	,,	8	45	,,	25	25	,,	Tomoda
,,	,,	9	32	,,	27	2	,,	,,
Mean				4°	27′	30″		

δ = 4° 27′.50
Reduction to 1895.0 = −1.06
,, ,, sea level = 0.00
δ = 4° 26′.4

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	10th	14h	27m	—	47°	54′.4	Katō	Nakamura
,,	,,	19	2	—	,,	55.0	Nakamura	,,
,,	11th	6	7		,,	56.2	Tomoda	Tomoda
Mean					47	55′.2		

θ = 47° 55′.2
Reduction to 1895.0 = 1.13
,, ,, sea level = 0.00
θ = 47° 56′.3

HORIZONTAL INTENSITY (H)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	10th	13h	19m	0.30531	419.55	33°.1C	s 5.8232	33°.2C	5°55′42″.5	13°25′44″.4	33.1C	{ Tomoda Katō	{ Katō Tomoda
,,	,,	18	4	0.30500	420.89	27.4	5.8168	28.2	5 57 13.8	13 29 0.6	26.7	{ Tomoda Nakamura	{ Nakamura Tomoda
,,	,,	21	33	0.30531	421.83	24.6	5.8069	24.9	5 57 43.8	13 30 12.5	24.4	Tomoda	Nakamura
,,	11th	8	14	0.30554	421.82	25.0	5.8039	24.7	5 57 26.2	13 29 40.0	25.2	{ ,, Nakamura	{ ,, Tomoda
Mean				0.30529									

H = 0.30529
Reduction to 1895.0 = −2284
,, ,, sea level = 000
H = 0.30506

243. WAKAYAMA.

Normal School (和歌山尋常師範學校運動場)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	11th	17h	41m	4°	29′	19″	Tomoda	Nakamura
,,	,,	17	52	,,	30	7	Katō	,,
,,	,,	18	53	,,	30	28	Nakamura	Tomoda
,,	,,	20	24	,,	30	18	Tomoda	,,
,,	,,	20	56	,,	30	36	Nakamura	Katō
,,	,,	22	0	,,	30	20	Katō	Nakamura
,,	,,	23	48	,,	29	55	,,	Katō
,,	12th	0	38	,,	29	43	,,	,,
,,	,,	2	13	,,	29	7	,,	,,
,,	,,	4	19	,,	28	47	,,	,,
,,	,,	4	56	,,	28	40	,,	,,
,,	,,	6	28	,,	26	49	,,	,,
,,	,,	7	28	,,	25	32	,,	,,
,,	,,	8	16	,,	25	37	Nakamura	Tomoda
,,	,,	9	11	,,	26	14	Tomoda	Nakamura
,,	,,	10	6	,,	28	43	Nakamura	,,
,,	,,	10	54	,,	30	19	,,	,,
,,	,,	11	53	,,	33	41	,,	,,
,,	,,	13	1	,,	35	3	Katō	,,
,,	,,	13	51	,,	34	17	Nakamura	Katō
,,	,,	14	55	,,	33	20	Katō	Nakamura
,,	,,	15	57	,,	31	16	Nakamura	Katō
,,	,,	16	23	,,	30	38	Katō	Nakamura
Mean				4°	29′	58″		

δ = 4° 29.′97

Reduction to 1895.0 = −1.00

,, ,, sea level = 0.00

δ = 4° 29.′0

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	11th	19h	19m	—	48	1.′1	Tomoda	Tomoda
,,	12th	6	59	—	47	59.3	Katō	Katō
,,	,,	10	30	—	,,	58.2	Nakamura	Nakamura
,,	,,	15	16	—	,,	57.4	,,	Katō
Mean					47	59.′0		

θ = 47 59.′0

Reduction to 1895.0 = 1.61

,, ,, sea level = 0.00

θ = 48 0.′6

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 11th 19h 31m	0.30582	420.68	29.5C	s 5.8111	30.1C	5°56′15.″0	13°26′57.″5	28.9C	{Nakamura Katō	{Katō Nakamura
,, ,, 21 38	*0.30562	420.81	28.2	5.8205	28.7	(5 56 25.6	13 27 15.0	28.2)	,,	,,
,, 12th 8 47	0.30533	420.20	29.4	5.8181	29.5	5 56 15.6	13 26 53.8	29.4	{Nakamura Tomoda	{Katō Nakamura
,, ,, 13 37	0.30544	419.46	32.0	5.8228	32.3	5 55 31.9	13 25 15.0	31.6	{Nakamura Katō	{Katō Nakamura
Mean	0.30555									

H = 0.30555

Reduction to 1895.0 = −2436

,, ,, sea level = 000

H = 0.30531

244. SUMOTO.

Mituai (河添町字三ッ合ヒ, 吹キ洲)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	13th	13h	1m	1	37′	11″	Nakamura	Nakamura
,,	,,	13	40	,,	38	5	,,	Tomoda
,,	,,	14	25	,,	36	16	,,	,,
,,	,,	15	1	,,	35	13	Tomoda	Nakamura
,,	,,	15	53	,,	34	57	,,	,,
,,	,,	16	46	,,	33	32	Katō	Tomoda
,,	,,	17	47	,,	32	39	Nakamura	Katō
,,	,,	18	39	,,	32	32	Tomoda	,,
,,	,,	19	37	,,	32	29	Nakamura	Nakamura
,,	,,	21	34	,,	31	52	,,	Tomoda
,,	,,	22	43	,,	32	2	Tomoda	,,
,,	14th	1	21	,,	31	9	,,	,,
,,	,,	3	6	,,	30	53	,,	,,
,,	,,	5	15	,,	29	56	,,	,,
,,	,,	6	40	,,	28	12	,,	,,
,,	,,	7	56	,,	26	33	Katō	Katō
,,	,,	8	45	,,	27	5	,,	,,
,,	,,	9	44	,,	29	14	,,	,,
,,	,,	10	29	,,	31	6	,,	,,
,,	,,	10	56	,,	31	14	,,	Tomoda
Mean				1	31′	42″		

δ = 1° 31′.70

Reduction to 1895.0 = −1.03

,, ,, sea level = 0.00

δ = 1° 30′.7

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	13th	17h	23m		48	6′.2	Katō	Tomoda
,,	14th	2	25	—	,,	7.3	Tomoda	,,
,,	,,	9	1		,,	6.1	Katō	Katō
Mean					48°	6′.5		

θ = 48° 6′.5

Reduction to 1895.0 = 2.11

,, ,, sea level = 0.00

θ = 48° 8′.6

HORIZONTAL INTENSITY (H)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	13th	16h	27m	0.30589	419.52	31°.5C	5s.8176	31°.7C	5 55′12″.5	13°24′48″.8	31°.4C	Nakamura Tomoda	Katō Nakamura
,,	,,	19	16	0.30549	420.49	27.8	5.8140	27.8	5 56 21.2	13 27 10.0	27.8	,, Kotō	Katō Tomoda
,,	,,	22	11	0.30572	421.18	26.6	5.8071	26.6	5 56 37.5	13 27 10.0	26.6	Tomdda Nakamura	Nakamura Tomoda
,,	14th	7	33	0.30597	420.36	28.8	5.8101	28.8	5 55 53.1	13 23 28.8	28.8	Tomoda	Katō
Mean				0.30577									

H = 0.30577

Reduction to 1895.0 = −2570

,, ,, sea level = 000

H = 0.30551

245. MINABE.

Station, 1887 (村役場裏海濱芝地, 舊觀測所)

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	15th	15h	33m	4°	18′	51″	Nakamura	Katō
,,	,,	16	20	,,	18	39	,,	Tomoda
,,	,,	17	17	,,	18	17	Tomoda	Nakamura
,,	,,	18	9	,,	18	20	Katō	Tomoda
,,	,,	19	5	,,	17	35	Nakamura	Nakamura
,,	,,	20	41	,,	17	32	Katō	,,
,,	,,	21	34	,,	17	15	Nakamura	,,
,,	,,	22	33	,,	16	46	,,	,,
,,	,,	23	36	,,	16	18	,,	,,
,,	16th	3	33	,,	15	14	,,	,,
,,	,,	5	11	,,	14	59	,,	,,
,,	,,	5	55	,,	14	5	,,	,,
,,	,,	6	56	,,	13	23	,,	,,
,,	,,	7	55	,,	13	14	,,	,,
,,	,,	9	1	,,	14	14	Katō	Tomoda
,,	,,	9	56	,,	15	3	Tomoda	,,
,,	,,	11	1	,,	16	45	,,	,,
,,	,,	12	0	,,	18	12	Nakamura	,,
,,	,,	12	48	,,	18	32	Tomoda	Nakamura
,,	,,	13	37	,,	18	45	Nakamura	,,
,,	,,	14	23	,,	18	29	Tomoda	Tomoda
,,	,,	15	19	,,	18	14	Nakamura	,,
,,	,,	16	12	,,	17	57	Tomoda	Nakamura
Mean				4°	16′	25″		

δ = 4° 16′.42
Reduction to 1895.0 = −0.75
,, ,, sea level = 0.00
δ = 4° 15′.7

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	15th	17h	2m	—	47°	22′.5	Katō	Nakamura
,,	,,	22	14	—	,,	22.1	Nakamura	,,
,,	16th	6	22	—	,,	25.1	,,	,,
,,	,,	11	43	—	,,	22.6	Tomoda	,,
Mean					47°	23′.1		

θ = 47° 23′.1
Reduction to 1895.0 = 1.14
,, ,, sea level = 0.00
θ = 47° 24′.2

HORIZONTAL INTENSITY (*H*)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	*H*	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 15th 18h 44m	0.30753	419.86	29.9C	5.8005s	30.3C	5°53′39″.4	13°21′10″.6	29.5C	Tomoda Katō	Katō Tomoda
,, ,, 21 11	0.30772	420.68	28.2	5.7923	28.4	5 53 59.4	13 21 17.5	28.1	Nakamura	Katō
,, 16th 8 39	0.30763	419.38	32.8	5.8012	32.5	5 52 48.1	13 19 6.9	33.2	Tomoda	,,
,, ,, 13 20	0.30775	417.82	38.3	5.8127	38.5	5 51 19.4	13 15 33.9	38.0	Tomoda Nakamura	Nakamura Tomoda
Mean	0.30766									

H = 0.30766
Reduction to 1895.0 = −2388
,, ,, sea level = 000
H = 0.30742

246. TIKATUYU.

DIP (θ)
Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 18th 15h 28m	—	47° 29.5	Nakamura	Nakamura
„ „ 18 2	—	„ 19.1	Tomoda	„
„ „ 18 53	—	„ 24.4	Nakamura	Tomoda
Mean		47° 24.3		

$\theta = 47°\ 24.3$
Reduction to 1895.0 = 0.85
„ „ sea level = −0.08
$\theta = 47°\ 25.1$

HORIZONTAL INTENSITY (*H*)
(* *Value deduced from Vibration only by assuming Value of M.*)
Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 18th 16h 14m	*0.30616	421.62	24.0C	5.7999	24.0C	—	—	—	Tomoda	Nakamura
„ „ 17 53	*0.30616	421.68	23.9	5.7995	23.9	—	—	—	„	„
Mean	0.30616									

$H = 0.30616$
Reduction to 1895.0 = −2265
„ „ sea level = 595
$H = 0.30599$

247. HONGŪ.

DECLINATION (δ)
Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 19th 18h 36m	4° 20′ 26″	Katō	Katō
„ „ 19 11	„ 20 14	„	„
„ „ 19 50	„ 20 29	Nakamura	Tomoda
„ „ 20 53	„ 20 26	Tomoda	Nakamura
„ „ 22 8	„ 20 6	Nakamura	Katō
„ „ 23 36	„ 19 55	„	Nakamura
„ 20th 0 35	„ 19 36	„	„
„ „ 3 13	„ 18 16	„	„
„ „ 5 14	„ 18 19	„	„
„ „ 6 21	„ 17 24	„	„
„ „ 7 25	„ 17 0	„	„
„ „ 8 35	„ 17 56	Katō	Katō
„ „ 9 32	„ 19 27	„	„
„ „ 10 38	„ 21 35	„	„
„ „ 11 37	„ 22 33	Nakamura	„
„ „ 12 24	„ 22 58	Katō	Nakamura
„ „ 13 10	„ 23 8	Nakamura	Katō
„ „ 14 12	„ 22 13	„	Nakamura
„ „ 15 12	„ 20 36	Katō	Katō
„ „ 16 14	„ 19 7	Nakamura	„
„ „ 16 37	„ 18 53	Katō	Nakamura
„ „ 17 44	„ 18 58	Nakamura	Katō
„ „ 18 37	„ 19 19	Katō	„
„ „ 19 6	„ 19 40	Nakamura	„
Mean	4° 19′ 41″		

$\delta = 4°\ 19.68$
Reduction to 1895.0 = −0.85
„ „ sea level = −0.01
$\delta = 4°\ 18.8$

DIP (θ)
Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	20th	6h	1m	—	47	24′.2	Nakamura	Nakamura
,,	,,	11	20	—	,,	21.7	Katō	Katō, Nakamura
,,	,,	13	39	—	,,	22.8	Nakamura	,,
,,	,,	18	5	—	,,	22.7	Katō	,,
Mean					47°	22′.9		

$\theta = 47°\ \ 22'.9$
Reduction to 1895.0 = 0.65
,, ,, sea level = −0.02
$\delta = 47\ \ 23'.5$

HORIZONTAL INTENSITY (H)
Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	19th	21h	9m	0.30640	420.37	27°.3C	5.8068	27.6C	5 55′16″.9	13 24′45″.6	27°.1C	Tomoda	Nakamura
,,	20th	8	12	0.30641	420.61	27.2	5.8048	27.3	5 55 16.2	13 24 26.9	27.1	,, Katō	Katō, Tomoda
,,	,,	12	52	0.30675	420.30	28.2	5.8039	28.3	5 54 41.2	13 23 16.9	28.1	Nakamura	Katō
,,	,,	17	4	0.30650	420.03	29.1	5.8083	29.3	5 54 46.9	13 23 31.9	28.9	Katō	Nakamura
Mean				0.30651									

$H = 0.30651$
Reduction to 1895.0 = −2207
,, ,, sea level = 124
$H = 0.30630$

248. KUSIMOTO.

At Pasture Ground (牧 場 内)

DECLINATION (δ)
Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	23rd	9h	14m	4°	10′	4″	Nakamura	Tomoda
,,	,,	9	45	,,	11	39	,,	Nakamura
,,	,,	10	36	,,	13	19	Tomoda	,,
,,	,,	11	47	,,	15	10	,,	,,
,,	,,	12	48	,,	16	20	Nakamura	Tomoda
,,	,,	13	43	,,	15	29	Tomoda	Nakamura
,,	,,	14	47	,,	13	49	Nakamura	Tomoda
,,	,,	16	5	,,	12	21	Tomoda	Nakamura
,,	,,	16	59	,,	11	22	Nakamura	,,
,,	,,	17	56	,,	11	9	Tomoda	Tomoda
,,	,,	18	50	,,	10	22	,,	,,
,,	,,	20	27	,,	10	8	Nakamura	,,
,,	,,	21	26	,,	10	27	Tomoda	Nakamura
,,	,,	22	47	,,	10	32	,,	Tomoda
,,	24th	3	58	,,	9	24	,,	,,
,,	,,	5	39	,,	9	1	,,	,,
,,	,,	6	10	,,	8	10	,,	,,
,,	,,	7	14	,,	7	11	Nakamura	,,
,,	,,	8	5	,,	7	32	,,	Nakamura
,,	,,	9	5	,,	9	22	,,	,,
,,	,,	9	54	,,	11	27	Tomoda	,,
Mean				4°	11′	6″		

$\delta = 4°\ \ 11'.10$
Reduction to 1895.0 = −0.66
,, ,, sea level = 0.00
$\delta = 4°\ \ 10'.4$

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 23rd 11h 24m	—	46° 50.3	Nakamura	Tomoda
,, ,, 15 21	—	,, 53.6	Tomoda	,,
,, ,, 22 20	—	,, 57.9	,,	,,
,, 24th 6 48	—	,, 58.4	,,	,,
,, ,, 9 29	—	,, 59.8	Nakamura	Nakamura
Mean		46° 56.0		

$\theta = 46°\ 56.0$

Reduction to 1895.0 = 0.33

,, ,, sea level = 0.00

$\theta = 46°\ 56.3$

HORIZONTAL INTENSITY (H)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 23rd 13h 22m	0.30762	418.76	32.3C	5.8065 s	32.4C	5 52′31″.2	13°18′36″.9	32.1C	Tomoda	Nakamuaa
,, ,, 17 31	0.30729	419.05	29.4	5.8077	29.8	5 53 23.7	13 20 49.4	29.0	,, Nakamura	,, Tomoda
,, ,, 22 5	0.30701	420.22	26.1	5.8013	26.1	5 54 26.9	13 22 53.8	26.1	Tomoda	Nakamura
,, 24th 7 47	0.30729	419.68	28.0	5.8024	27.9	5 53 40.6	13 21 11.9	28.1	,, Nakamura	,, Tomoda
,, ,, 10 30	0.30736	418.88	31.5	5.8075	31.4	5 52 47.5	13 19 5.6	31.7	Tomoda	Nakamura
Mean	0.30731									

$H = 0.30731$

Reduction to 1895.0 = −2218

,, ,, sea level = 000

$H = 0.30709$

249. ARIMA.

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 26th 9h 53m	4° 18′ 29″	Tomoda	Nakamura
,, ,, 10 29	,, 19 43	,,	,,
,, ,, 11 14	,, 20 38	Nakamura	Tomoda
,, ,, 11 52	,, 21 11	Tomoda	Nakamura
,, ,, 12 44	,, 21 4	Nakamura	Tomoda
,, ,, 13 38	,, 20 45	Tomoda	Nakamura
,, ,, 14 12	,, 19 28	Nakamura	,,
,, ,, 15 39	,, 17 50	,,	Tomoda
,, ,, 16 40	,, 16 28	Tomoda	Nakamura
,, ,, 17 43	,, 15 58	Nakamura	,,
,, ,, 18 37	,, 16 12	Tomoda	Tomoda
,, ,, 19 49	,, 16 46	Nakamura	,,
,, ,, 20 53	,, 16 59	Tomoda	Nakamura
,, ,, 22 3	,, 17 11	Nakamura	Tomoda
,, ,, 23 27	,, 16 30	,,	Nakamura
,, 27th 3 22	,, 16 6	,,	,,
,, ,, 5 1	,, 15 30	,,	,,
,, ,, 5 49	,, 15 0	,,	,,
,, ,, 6 50	,, 13 1	Tomoda	,,
,, ,, 7 48	,, 13 0	,,	Tomoda
,, ,, 8 46	,, 13 53	,,	,,
,, ,, 9 46	,, 16 43	Nakamuua	,,
,, ,, 10 54	,, 19 21	Tomoda	Nakamura
Mean	4° 16′ 50″		

$\delta = 4°\ 16.83$

Reduction to 1895.0 = −0.91

,, ,, sea level = 0.00

$\delta = 4°\ 15.9$

DIP θ

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 26th 12h 22m	—	47° 26'.9	Tomoda	Nakamura
〃 〃 16 3	—	〃 26.7	Nakamura	Tomoda
〃 〃 21 40	—	〃 26.0	Tomoda	Nakamura
〃 27th 6 20	—	〃 28.5	Nakamura	〃
Mean		47° 27'.0		

$\theta = 47°\ 27'.0$
Reduction to 1895.0 = 0.50
〃 〃 sea level = 0.00
$\theta = 47°\ 27'.5$

HORIZONTAL INTENSITY (H)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_n	Observer	Recorder
Aug. 26th 13h 19m	0.30570	417.68	35°.2C	5s.8332	35°.7C	5°53'45".0	13°21'15".6	34°.8C	Tomoda	Nakamura
〃 〃 17 25	0.30572	419.31	29.3	5.8204	29.4	5 55 3.8	13 24 14.4	29.3	〃 / Nakamura	〃 / Tomoda
〃 〃 20 28	0.30579	419.41	28.1	5.8188	28.0	5 55 18.1	13 25 5.6	28.2	Tomoda	Nakamura
〃 27th 7 19	0.30569	420.56	25.3	5.8123	25.6	5 56 19.4	13 27 8.8	25.1	〃 / Nakamura	〃 / Tomoda
Mean	0.30573									

$H = 0.30573$
Reduction to 1895.0 = −2115
〃 〃 sea level = 000
$H = 0.30552$

250. NAGASIMA.

DECLINATION (δ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 29th 17h 12m	4 23' 54"	Nakamura	Tomoda
〃 〃 17 53	〃 23 40	〃	〃
〃 〃 19 20	〃 24 9	Tomoda	〃
〃 〃 20 8	〃 23 58	Nakamura	Nakamura
〃 〃 21 1	〃 23 45	Tomoda	〃
〃 〃 22 6	〃 23 37	〃	Tomoda
〃 30th 2 6	〃 22 42	〃	〃
〃 〃 5 12	〃 20 6	〃	〃
〃 〃 6 15	〃 19 20	〃	〃
〃 〃 7 28	〃 18 10	Nakamura	Nakamura
〃 〃 9 6	〃 19 56	〃	Tomoda
〃 〃 10 10	〃 22 49	〃	Nakamura
〃 〃 10 56	〃 24 59	〃	〃
〃 〃 11 57	〃 26 8	〃	〃
〃 〃 12 59	〃 27 36	〃	〃
〃 〃 13 56	〃 26 24	Tomoda	〃
〃 31st 11 23	〃 23 15	Nakamura	〃
〃 〃 12 17	〃 24 7	Tomoda	〃
〃 〃 13 18	〃 23 37	Nakamura	Tomoda
〃 〃 14 24	〃 22 34	Tomoda	〃
〃 〃 15 23	〃 20 32	Nakamura	〃
〃 〃 16 10	〃 18 58	Tomoda	Nakamura
〃 〃 17 18	〃 18 36	〃	Tomoda
〃 〃 17 42	〃 18 36	Nakamura	〃
Mean	4° 22' 59"		

$\delta = 4°\ 22'.98$
Reduction to 1895.0 = −1.08
〃 〃 sea level = 0.00
$\delta = 4°\ 21'.9$

DIP (θ)
Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 29th 20h 36m		47° 50′.0	Nakamura	Nakamura
,, 30th 7 2		,, 45.4	Tomoda	Tomoda
,, ,, 11 39		,, 48.5	Nakamura	Nakamura
,, 31st 15 8		,, 47.7	Tomoda	,,
Mean		47° 47′.9		

$\theta = 47°\ 47'.9$
Reduction to 1895.0 = 0.50
,, ,, sea level = 0.00
$\theta = 47°\ 48'.4$

HORIZONTAL INTENSITY (H)
(*Value deduced from Vibration only by assuming Value of M.)
Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 29th 18h 48m	0.30418	419.15	28.1C	5.8368	28.4C	5°56′54″.4	13°28′33″.8	27.8C	Tomoda	Nakamura
,, ,, 21 44	0.30435	419.87	25.8	5.8293	25.8	5 57 20.6	13 29 40.6	25.8	,, Nakamura	,, Tomoda
,, 30th 8 12	*0.30410	419.96	25.4	5.8311	25.4	(5 57 14.4	13 30 13.8	25.6)	Tomoda	Nakamura
,, 31st 13 0	0.30439	417.58	34.2	5.8455	34.7	5 55 5.7	13 24 20.7	33.8	,, Nakamura	,, Tomoda
,, ,, 16 45	0.30422	418.29	30.9	5.8435	34.7	5 56 6.2	13 26 36.2	30.1	Tomoda	Nakamura
Mean	0.30425									

$H = 0.30425$
Reduction to 1895.0 = −2046
,, ,, sea level = 000
$H = 0.30405$

251. MATUSAKA.

Racing Ground (競馬場内)

DECLINATION (δ)
Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 2nd 20h 1m	4° 25′ 6″	Nakamura	Tomoda
,, ,, 20 38	,, 24 42	Tomoda	Nakamura
,, ,, 21 55	,, 23 53	Nakamura	Tomoda
,, ,, 23 15	,, 24 22	,,	Nakamura
,, 3rd 2 31	,, 24 9	,,	,,
,, ,, 4 37	,, 23 35	,,	,,
,, ,, 5 28	,, 22 44	,,	,,
,, ,, 6 12	,, 24 58	,,	,,
,, ,, 7 11	,, 24 24	,,	Tomoda
,, ,, 8 17	,, 22 40	Tomoda	,,
,, ,, 9 19	,, 23 44	,,	,,
,, ,, 10 20	,, 26 45	,,	,,
,, ,, 11 27	,, 29 22	,,	,,
,, ,, 12 19	,, 30 11	Nakamura	,,
,, ,, 13 9	,, 30 8	Tomoda	Nakamura
,, ,, 14 27	,, 28 0	Nakamura	Tomoda
,, ,, 15 24	,, 26 42	Tomoda	,,
,, ,, 16 18	,, 25 23	,,	,,
,, ,, 17 25	,, 25 13	,,	Nakamura
,, ,, 18 17	,, 24 51	Nakamura	Tomoda
,, ,, 19 8	,, 24 52	Tomoda	Nakamura
Mean	4° 25′ 7″		

$\delta = 4°\ 25'.12$
Reduction to 1895.0 = −1.34
,, ,, sea level = 0.00
$\delta = 4°\ 23'.8$

DIP (θ)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 2nd 22h 35m	—	48° 11!2	Nakamura	Nakamura
,, 3rd 6 33	—	,, 9.3	,,	,,
,, ,, 11 1	—	,, 9.6	Tomoda	Tomoda
,, ,, 16 52	—	,, 7.8	,,	,,
Mean		48° 9!5		

θ = 48° 9!5
Reduction to 1895.0 = 0.67
,, ,, sea level = 0.00
θ = 48° 10!2

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the Kinki Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 2nd 21h 33m	0.30328	419.43	25°.5C	s 5.8432	25°.9C	5°58′21″.2	13°32′ 1.9	25°.2 C	Tomoda	Nakamura
,, 3rd 7 52	0.30344	419.36	27.3	5.8403	26.6	5 57 43.1	13 30 28.8	28.1	{ ,, Nakamura	{ ,, Tomoda
,, ,, 13 48	*0.30340	419.16	26.6	5.8433	26.6	(5 57 28.8	13 31 18.1	26.2)	Tomoda	Nakamura
,, ,, 13 57	0.30343	419.20	26.3	5.8433	26.6	5 57 56.3	13 31 5.0	26.1	Nakamura	Tomoda
,, ,, 17 57	0.30340	419.35	26.2	5.8425	26.5	5 58 9.4	13 31 38.1	25.9	Tomoda	Nakamura
Mean	0.30339									

H = 0.30339
Reduction to 1895.0 = −1990
,, ,, sea level = 000
H = 0.30319

252. MIHARA.

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time)	δ	Observer	Recorder
July 1st 9h 10m	4° 35′ 54″	Tanakadate	Sutō
,, ,, 9 52	,, 37 6	Sutō	Sano
,, ,, 10 37	,, 38 57	Sano	Sutō
,, ,, 12 28	,, 41 47	Sutō	Sano
,, ,, 14 26	,, 42 55	Tanakadate	Sutō
,, ,, 14 50	,, 42 55	,,	,,
,, ,, 16 49	,, 40 57	Sutō	Sano
,, ,, 18 11	,, 40 9	,,	,,
,, ,, 19 33	,, 40 2	Sano	Sutō
,, ,, 21 28	,, 40 17	Tanakadate	Tanakadate
,, ,, 23 39	,, 39 44	,,	,,
,, 2nd 2 7	,, 39 20	,,	,,
,, ,, 5 23	,, 38 52	,,	,,
,, ,, 7 15	,, 36 16	,,	,,
,, ,, 8 23	,, 35 19	,,	Sano
,, ,, 9 10	,, 35 45	,,	,,
Mean	4° 39′ 46″		

δ = 4° 39!77
Reduction to 1895.0 = −0.52
,, ,, sea level = 0.00
δ = 4° 39!2

DIP (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	1st	12h	7m	2	48°	23'.7	Sutō	Sano
"	"	19	0	2	"	24.3	Sano	Sutō
"	2nd	6	33	1	"	17.8	Tanakadate	Tanakadate
Mean					48°	21'.9		

θ = 48° 21'.9
Reduction to 1895.0 = 3.45
" " sea level = 0.00
θ = 48° 25'.4

HORIZONTAL INTENSITY (H)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	1st	13h	51m	0.30847	408.02	29°.3C	5s.9417	30°.0C	5°43'48".8	12°57'45".0	28°.7C	Sutō Tanakadate	Tanakadate Sutō
"	"	16	3	0.30921	408.53	26.8	5.9297	27.0	5 43 48.7	12 58 26.2	26.6	Sano Sutō	" Sano
"	"	20	46	*0.30888	409.33	24.4	5.9234	24.4	(5 44 23.7	13 2 27.5	24.0)	" Tanakadate	Tanakadate Sutō
"	2nd	8	4	0.30935	409.69	23.5	5.9193	23.6	5 44 37.5	13 0 17.5	23.4	Sano Tanakadate	Tanakadate Sano
Mean				0.30898									

H = 0.30898
Reduction to 1895.0 = −3077
" " sea level = 0.0
H = 0.30867

253. HIROSIMA.

Park (公園地)

DECLINATION (δ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	2nd	18h	28	4°	33'	14"	Tanakadate	Sutō
"	"	19	27	"	33	31	Sutō	Tanakadate
"	"	20	57	"	33	17	Sano	Sano
"	3rd	1	23	"	33	28	"	"
"	"	3	29	"	32	50	"	"
"	"	4	49	"	32	25	"	"
"	"	6	19	"	30	17	Tanakadate	Sutō
"	"	7	47	"	30	22	"	"
"	"	9	21	"	31	15	Sutō	Tanakadate
"	"	10	25	"	32	55	"	"
"	"	11	22	"	35	1	"	"
"	"	12	3	"	33	20	Tanakadate	Sutō
"	"	13	56	"	36	2	Sano	Sano
"	"	15	32	"	35	35	Sutō	"
"	"	17	9	"	34	54	"	"
"	"	18	45	"	34	3	Tanakadate	"
"	4th	0	41	"	33	35	"	Tanakadate
Mean				4°	33'	31"		

δ = 4° 33'.52
Reduction to 1895.0 = −0.35
" " sea level = −0.00
δ = 4° 33'.2

DIP (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	2nd	17h	54m	2	48°	27.9	Sutō	Sano
,,	3rd	8	55	2	,,	24.0	Tanakadate	Sutō
,,	,,	18	4	2	,,	24.5	Sano	Tanakadate
Mean					48	25.5		

θ=48° 25.5
Reduction to 1895.0= 4.21
,, ,, sea level= 0.00
θ=48° 29.7

HORIZONTAL INTENSITY (H)
(* *Value deduced from Vibration only by assuming Value of M.*)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	3rd	7h	10m	0.30963	409.59	23.3C	s 5.9175	23.3C	5°44′ 6.″2	12 58′53.″7	23.3 C	Sutō / Tanakadate	Tanakadate / Sutō
,,	,,	12	11	*0.30934	408.97	25.9	5.9026	26.1	(5 43 35.0	12 57 16.2	25.9)	,, / Sutō	,, / Tanakadate
,,	,,	19	11	0.30972	409.92	23.0	5.9147	23.3	5 44 23.1	12 59 33.7	22.8	Sano / Tanakadate	,, / Sano
Mean				0.30956									

H=0.30956
Reduction to 1895.0= −3309
,, ,, sea level= 000
H=0.30923

Hirosima Syuttyō (廣 島 出 張)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	4th	—h	—m	*0.31086	409.30	24.8C	s 5.9164	24.8C	—	—	—	Sano	Tanakadate
,,	,,	9	10	*0.30830	409.74	23.3	5.9351	23.3	—	—	—	,,	,,
,,	,,	—	—	*0.31029	409.84	22.9	5.9180	22.9	—	—	—	,,	,,
Mean				0.30982									

254. SITATA.

Hatiman Zinsya (下 田 八 幡 神 社)

DECLINATION (δ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	5th	11h	48m	4	36′	19″	Tanakadate	Sano / Sutō
,,	,,	13	36	,,	37	36	,,	Sano
,,	,,	15	24	,,	35	18	,,	Sutō
,,	,,	16	35	,,	32	59		,,
,,	,,	17	33	,,	31	31	Sutō	Sano
,,	,,	18	16	,,	33	9	,,	,,
,,	,,	20	35	,,	30	16	Tanakadate	Tanakadate
,,	,,	22	13	,,	32	59	,,	Sano
,,	,,	22	34	,,	32	43	Sano	,,
,,	6th	4	0	,,	31	36	Tanakadate	,,
,,	,,	5	41	,,	29	40	,,	,,
,,	,,	7	47	,,	27	41	Sutō	Sutō
Mean				4	31′	58″		

δ=4 31.97
Reduction to 1895.0= −0.03
,, ,, sea level= 0.00
δ=4° 31.9

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	5th	16h	12m	2	47	57.7	Sano	Sutō
,,	,,	17	5	2	,,	56.6	Sutō	Sano
,,	6th	8	39	2	,,	56.5	,,	,,
Mean					47°	56.9		

$\theta = 47°\ \ 56'.9$
Reduction to 1895.0 = 3.92
,, ,, sea level = 0.00
$\theta = 48°\ \ 0'.8$

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections. φ_1	Mean Deflections. φ_2	Temp. t_D	Observer	Recorder
July	5th	13h	8m	*0.31034	407.59	28°.4C	s 5.9033	28°.2C	(5°41′43″.1	12°53′ 7″.5	28°.5C)	Sano Sutō	Sutō Sano
,,	,,	18	59	*0.31020	409.51	23.6	5.9125	23.6	(5 42 40.0	12 56 20.6	22.9)	,, Tanakadate	Tanakadate Sutō
,,	6th	6	11	0.31076	408.94	24.7	5.9113	24.6	5 42 23.7	12 55 11.2	24.8	Sano Tanakadate	Tanakadate Sano
Mean				0.31043									

$H = 0.31043$
Reduction to 1895.0 = −3350
,, ,, sea level = 000
$H = 0.31009$

255. MURODZUMI.

Common School (小 學 校)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	7th	9h	11m	4	30′	29″	Tanakadate	Sutō
,,	,,	10	49	,,	32	41	Sutō	Sano
,,	,,	11	41	,,	34	25	Tanakadate	Sutō
,,	,,	13	17	,,	36	53	Sano	Sano
,,	,,	14	26	,,	37	32	Sutō	Tanakadate
,,	,,	15	32	,,	36	12	,,	Sano
,,	,,	16	36	,,	34	5	Tanakadate	Sutō
,,	,,	17	43	,,	33	6	Sutō	Tanakadate
,,	,,	18	30	,,	32	22	,,	Sano
,,	,,	20	6	,,	32	54	Tanakadate	Tanakadate
,,	,,	22	40	,,	32	57	Sano	,,
,,	8th	3	4	,,	32	2	,,	Sano
,,	,,	4	44	,,	31	12	,,	,,
,,	,,	6	33	,,	30	42	,,	,,
,,	,,	7	39	,,	34	7	Tanakadate	Sutō
,,	,,	8	45	,,	30	17	,,	,,
,,	,,	9	22	,,	31	16	Sutō	Tanakadate
Mean				4°	32′	57″		

$\delta = 4\ \ 32'.95$
Reduction to 1895.0 = 0.12
,, ,, sea level = 0.00
$\delta = 4°\ \ 33'.1$

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 7th 10h 0m	2	47° 59.′4	Sutō	Sano
" " 13 57	2	" 59.1	Sano	" Sutō
" " 21 56	2	48 0.6	Tanakadate	Sano
" 8th 8 29	2	47 59.6	"	Sutō
Mean		47° 59.′7		

$\theta = 47°\ 59.'7$

Reduction to 1895.0 = 4.25

" " sea level = 0.00

$\theta = 48°\ 4.'0$

HORIZONTAL INTENSITY (H)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 7th 12h 43m	0.31055	407.17	30.8C	5.9272 s	31.2C	5 40′50.″6	12 51′13.″7	30. C	Sutō Tanakadate	Tanakadate Sutō
" " 19 38	0.31092	408.40	27.1	5.9146	27.4	5 41 42.5	12 53 25.6	26.8	Sano Sutō	" Sano
" 8th 8 14	0.31100	409.27	24.2	5.9068	24.4	5 42 21.2	12 54 55.0	24.1	Tanakadate Sutō	Sutō Tanakadate
Mean	0.31082									

$H = 0.31082$

Reduction to 1895.0 = −3499

" " sea level = 000

$H = 0.31047$

Murodzumi Syuttyō (室 積 出 張)

Observations of the Seto Sea Party, 1896.

Hayanaga Hatiman (早 長 八 幡)

Date and Hour (Mean Local Time)	Needle No.	θ	Observer	Recorder
July 8th 15h 18m	2	48 1.′5	Sutō	Sano

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 8th 14h 40m	*0.31084	409.85	22.5C	5.9040 s	22.5C	—	—	—	Tanakadate Sutō	Sutō Tanakadate

256. YAMAGUTI.

Play ground of Yamaguti High School (山口高等學校運動場)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	9th	11h	43m	4°	34′	26″	Tanakadate	Sutō
..	..	12	50	..	34	10	Sutō	Sano
..	..	14	14	..	34	4	Tanakadate	..
..	..	15	17	,,	33	23	Sano	Sutō
..	..	16	42	,,	32	15	Sutō	Tanakadate
,,	..	17	42	..	31	21	,,	,,
..	..	19	47	,,	30	39	Tanakadate	Sano
..	..	21	53	..	32	8	Sutō	Sutō
,,	,,	22	56	..	31	38	,,	..
..	10th	3	48	..	31	3	Tanakadate	Tanakadate
..	..	6	12	..	28	50	..	,,
,,	..	6	53	..	28	6	,,	,,
..	..	8	20	..	29	31	Sutō	Sano
..	..	9	48	..	31	36	Sano	Sutō
..	..	10	38	..	32	24	Sutō	Sano
..	..	14	1	..	34	0	Tanakadate	Tanakadate
,,	..	15	0	..	33	38	,,	Sano
Mean				4°	31′	42″		

$\delta = 4°\ 31'.70$

Reduction to 1895.0 = 0.15

,, ,, sea level = 0.00

$\delta = 4°\ 31'.9$

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	9th	12h	30m	2	48°	18′.7	Sutō	Sano
,,	,,	19	13	2	..	19.8	Tanakadate	..
,,	10th	9	11	2	,,	19.1	Sano	Sutō Sano
Mean					48°	19′.2		

$\theta = 48°\ 19'.2$

Reduction to 1895.0 = 4.86

,, ,, sea level = 0.00

$\theta = 48°\ 24'.1$

HORIZONTAL INTENSITY (H)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July	9th	13h	37m	0.31105	409.37	23°.3C	5s.9059	23.6C	5° 42′ 18″.8	12° 54′ 41″.3	23.1C	Udziie Tanakadate	Tanakadate Udziie
,,	,,	21	14	0.31030	409.98	21.8	5.9032	22.3	5 43 7.5	12 56 35.0	21.3	.. Sutō	Sutō Tanakadate
,,	10th	7	46	0.31101	409.76	23.0	5.9023	22.7	5 42 40.6	12 55 40.0	23.4	Tanakadate ,,	.. Sutō
Mean				0.31065									

$H = 0.31065$

Reduction to 1895.0 = −3694

,, ,, sea level = 51

$H = 0.31029$

Yamaguti Syuttyō (山 口 出 張)

Observations of the Seto Sea Party, 1896.

(平 井 ノ 大 場)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 10th 19h 18m	2	48 25.1	Tanakadate	Sano

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 10th 18h 50m	*0.30987	409.66	22°.9C	s 5.9147	22°.9C	—	—	—	Sutō	Tanakadate

257. TUWANO

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 12th 6h 24m	4° 35′ 48″	Sano	Sano
,, ,, 7 9	,, 35 3	Tanakadate	Sutō
,, ,, 8 21	,, 34 9	Sutō	Tanakadate
,, ,, 9 33	,, 36 42	,,	,,
,, ,, 10 39	,, 38 53	Tanakadate	,,
,, ,, 11 30	,, 41 25	Sutō	,,
,, ,, 12 37	,, 44 50	Sano	Sutō
,, ,, 14 2	,, 45 20	Sutō	Sano
,, ,, 15 25	,, 45 51	,,	,,
,, ,, 16 25	,, 44 28	,,	,,
,, ,, 17 0	,, 43 21	Tanakadate	Sutō
,, ,, 17 46	,, 40 55	,,	Sano
,, ,, 18 50	,, 40 27	Sano	Tanakadate
,, ,, 20 6	,, 40 56	Sutō	Sutō
,, ,, 22 51	,, 40 53	Tanakadate	Tanakadate
,, 13th 3 21	,, 39 7	,,	,,
,, ,, 5 45	,, 38 8	,,	,,
,, ,, 6 21	,, 35 58	,,	Sano
Mean	4 40′ 25″		

$\delta = 4\ \ 40'.42$

Reduction to 1895.0 $= \quad -0.06$

,, ,, sea level $= \quad -0.01$

$\delta = 4°\ \ 40'.3$

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour Mean Local Time.	Needle No.	θ	Observer	Recorder
July 12th 8h 54m	2	48° 39′.7	Tanakadate	Sutō
,, ,, 14 55	2	,, 42.4	Sutō	Sano
Mean		48° 41′.0		

$\theta = 48°\ \ 41'.0$

Reduction to 1895.0 $= \quad 5.20$

,, ,, sea level $= \quad -0.03$

$\theta = 48°\ \ 46'.2$

HORIZONTAL INTENSITY (*H*)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 12th 7h 53m	0.31066	408.92	24°.6 C	s 5.9093	23°.1 C	5°42′ 8″.8	12°54′37″.5	26°.1 C	Tanakadate / Sutō	Sutō / Tanakadate
,, ,, 13 37	0.31013	407.37	29.6	5.9307	29.6	5 41 38.7	12 53 26.2	29.6	Sano / Sutō	Sutō / Sano
,, ,, 19 16	0.30982	409.58	22.4	5.9163	22.8	5 43 46.9	12 57 50.0	22.1	Sano / Tanakadate	Tanakadate / Sano
Mean	0.31020									

H = 0.31020
Reduction to 1895.0 = −3698
,, ,, sea level = 205
H = 0.30985

258. HAGI.

Hagimati, Kikugahama (萩町字菊ヶ濱)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	14th	11h	31m	4	33′	39″	Tanakadate	Sutō
,,	,,	12	37	,,	35	1	,,	Tanakadate
,,	,,	14	31	,,	35	29	Sutō	Sano
,,	,,	15	33	,,	36	1	Tanakadate	Sutō
,,	,,	16	50	,,	33	31	Sutō	Sano
,,	,,	18	27	,,	32	3	Sano	Sutō
,,	,,	19	14	,,	32	43	Tanakadate	Tanakadate
,,	,,	21	38	,,	32	54	,,	,,
,,	15th	0	28	,,	32	36	,,	,,
,,	,,	4	24	,,	31	18	,,	,,
,,	,,	5	53	,,	30	29	,,	,,
,,	,,	7	47	,,	29	16	,,	,,
,,	,,	10	8	,,	31	46	Sutō	Sano
,,	,,	12	32	,,	37	35	,,	Sutō
,,	,,	14	36	,,	37	29	,,	,,
,,	,,	16	0	,,	36	1	,,	Sano
,,	,,	17	46	,,	33	8	,,	Sutō
,,	,,	19	14	,,	32	23	,,	,,
Mean				4°	33′	2″		

δ = 4° 33′.03
Reduction to 1895.0 = 0.15
,, ,, sea level = 0.00
δ = 4° 33′.2

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder.
July	14th	17h	46m	2	48°	28′.2	Sutō	Sano
,,	15th	10	51	2	,,	34.1	Sano	,,
,,	,,	17	15	2	,,	33.8	Sutō	,,
Mean					48	32′.0		

θ = 48° 32′.0
Reduction to 1895.0 = 5.39
,, ,, sea level = 0.00
θ = 48° 37′.4

HORIZONTAL INTENSITY (*H*)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 14th 13h 38m	0.31202	407.93	28°.8C	s 5.9081	29°.3C	5°46′ 1″.3	12°49′23″.7	28°.3C	Sutō / Tanakadate	Tanakadate / Sutō
„ „ 19 39	0.31180	409.02	24.5	5.9017	24.9	5 41 13.7	12 52 10.6	24.0	Sano / Sutō	„ / Sano
„ 15th 9 36	0.31166	408.14	27.2	5.9077	23.7	5 40 27.5	12 50 31.2	27.8	Sano / Sutō	Sutō / Sano
Mean	0.31183									

$H=$ 0.31183
Reduction to 1895.0 = −3812
„ „ sea level = 13
$H=$ 0.31145

Hagi Syuttyō (萩 出 張)

Observations of the Seto Sea Party, 1895.

North side of Sumiyosi Zinsya (住吉神社ノ北方)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer.	Recorder
July 15th 20h 9m	2	48° 23′.9	Tanakadate	Sano

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 15th 18h 48m	*0.31156	409.07	24°.0C	s 5.9027	24°.0C	...	...	...	Sano	Tanakadate

259. AWANO.

River side near Ferry (粟野村字渡場，河原ノ中)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	17th	5h	36m	4°	32′	10″	Tanakadate	Sutō
„	„	6	51	„	31	19	Sutō	Tanakadate
„	„	7	28	„	31	28	Tanakadate	Sutō
„	„	8	48	„	32	3	„	Tanakadate
„	„	9	54	„	33	5	Sutō	„
„	„	10	51	„	33	46	„	„
„	„	11	49	„	34	30	Tanakadate	Sutō
„	„	12	42	„	35	25	Sano	Tanakadate
„	„	14	1	„	36	58	Sutō	Sano
„	„	15	23	„	36	31	Sano	Sutō
„	„	16	37	„	35	33	Sutō	„
„	„	18	19	„	34	10	„	Sano
„	„	19	26	„	33	48	Tanakadate	Tanakadate
„	„	21	23	„	33	56	„	Sutō
„	„	22	30	„	33	58	„	Tanakadate
„	18th	0	39	„	33	20	„	„
„	„	2	47	„	32	58	„	„
„	„	4	31	„	33	24	„	„
„	„	5	43	„	32	50	„	„
„	„	7	17	„	31	24	„	„
Mean				4°	33′	55″		

δ = 4° 33′.92
Reduction to 1895.0 = 0.35
„ „ sea level = 0.00
δ = 4° 34′.3

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	17th	6h	26m	2	48	36′.2	Sutō	Tanakadate
„	„	11	25	2	„	36.0	Tanakadate	Sutō
„	„	17	33	2	„	29.8	Sano	„
„	18th	6	10	2	„	36.4	Sutō	Sano
Mean					48	34′.6		

$\theta = 48°\ 34'.6$
Reduction to 1895.0 = 5.70
„ „ sea level = 0.00
$\theta = 48°\ 40'.3$

HORIZONTAL INTENSITY (H)

(*Value deduced from Vibration only by assuming Value of M.)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	17th	8h	23m	*0.31147	407.49	29.4C	s 5.9057	27°.6C	(5°40′ 3″.8	12°49′26″.2	29°.4C)	Sutō Tanakadate	Tanakadate Sutō
„	„	13	38	0.31166	406.57	31.9	5.9212	32.4	5 39 18.8	12 48 0.0	31.5	Sano Sutō	„ Sano
„	„	20	56	0.31134	408.28	25.0	5.9106	26.0	5 40 55.0	12 51 22.5	26.1	„ Tanakadate	Tanakadate Sutō
Mean				0.31149									

$H =$ 0.31149
Reduction to 1895.0 = −3963
„ „ sea level = 000
$H =$ 0.31109

260. HAMADA.

West side of Hamade River (濱田川西岸，畑中)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	21st	18h	21m	4°	43′	8″	Tanakadate	Sutō
„	„	19	57	„	42	33	Sano	Tanakadate
„	„	21	32	„	42	32	Sutō	„
„	22nd	0	4	„	41	38	Tanakadate	„
„	„	1	10	„	41	2	„	„
„	„	4	2	„	41	3	„	„
„	„	6	30	„	38	20	„	„
„	„	7	29	„	39	1	„	„
„	„	8	54	„	41	31	Sutō	Sano
„	„	10	28	„	42	56	„	„
„	„	11	25	„	43	33	„	„
„	„	13	2	„	43	55	Tanakadate	Tanakadate
„	„	14	23	„	44	26	„	Sutō
„	„	15	33	„	43	23	Sutō	„
„	„	16	27	„	42	27	„	„
„	„	17	37	„	42	6	„	„
„	„	18	51	„	42	39	Tanakadate	„
„	„	23	31	„	43	8	„	Tanakadate
„	23rd	4	10	„	42	3	„	„
„	„	6	6	„	39	33	„	„
„	„	7	47	„	39	30	„	„
Mean				4°	42′	9″		

$\delta = 4°\ 42'.15$
Reduction to 1895.0 = −0.42
„ „ sea level = 0.00
$\delta = 4°\ 41'.7$

DIP (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 21st 22h 47m	2	49° 41′.5	Sutō	Tanakadate
,, 22nd 10 0	2	,, 36.8	Sano	Sutō
,, ,, 15 9	2	,, 38.0	Tanakadate	,,
,, ,, 18 29	2	,, 44.3	Sutō	,,
Mean		49° 40′.2		

$\theta =$ 49° 40′.2
Reduction to 1895.0 = 5.15
,, ,, sea level = 0.00

$\theta =$ 49° 45′.4

HORIZONTAL INTENSITY (H)
(* *Value deduced from Vibration only by assuming Value of M.*)
Observations of the Seto Sea Party, 1895.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 21st 20h 40m	*0.30381	408.06	26°.3C	s 5.9852	26°.3C	—	—	—	Sano	Tanakadate
,, 22nd 8 18	0.30374	407.54	27.5	5.9900	27.6	5°48′57″.5	13°10′ 1″.2	27°.4C	,, Sutō	Sutō Sano
,, ,, 14 4	0.30413	405.79	34.0	5.9993	33.9	5 46 53.8	13 5 21.2	34.0	Tanakadate	Tanakadate Sutō
,, 23rd 7 22	0.30392	407.15	29.9	5.9885	28.7	5 48 3.8	13 7 58.8	31.0	Sutō Tanakadate	Tanakadate Sutō
Mean	0.30390									

$H =$ 0.30390
Reduction to 1895.0 = −3610
,, ,, sea level = 000

$H =$ 0.30354

Hamada Syuttyō (濱 田 出 張)

Observations of the Seto Sea Party, 1896.

(1) **Station, 1887** (千八百八十七年ノ觀測點)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 23rd 11h 14m	2	49° 54′.0	Sutō	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 23rd — —	*0.30268	404.51	38.3C	s 6.0233	3.83C	—		—	Sutō	Tanakadate

(2) **Common School** (濱田尋常小學校)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July. 23rd 13h 0m	2	49° 37′.2	Tanakadate	Sutō

(3) **Near Station, 1887** (千八百八十七年觀測點ノ傍ナル畑中, 觀音堂前)

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections φ_1	φ_2	Temp. t_D	Observar	Recorder
July 23rd 10h 25m	*0.30271	404.90	37°.1C	s 6.0199	37°.1C	—	—	—	Tanakadate	Sutō

261. ITIKI.

Itiki-mura No. 2073, (市木村二千七十三番地)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	24th	13h	1m	4°	45′	2″	Tanakadate	Sutō
,,	,,	14	30	,,	46	1	,,	,,
,,	,,	16	22	,,	43	4	Sutō	Sano
,,	,,	17	43	,,	42	6	,,	,,
,,	,,	18	51	,,	42	41	,,	Sutō
,,	,,	20	33	,,	43	25	,,	Sano
,,	25th	1	24	,,	41	42	Sano	,,
,,	,,	3	48	,,	41	6	,,	,,
,,	,,	5	53	,,	40	10	,,	,,
,,	,,	7	2	,,	39	3	Tanakadate	Tanakadate
,,	,,	8	26	,,	39	2	,,	,,
,,	,,	10	0	,,	40	53	,,	,,
,,	,,	11	27	,,	43	58	,,	Sano
,,	,,	12	23	,,	46	6	,,	Tanakadate
,,	,,	13	43	,,	47	0	,,	Sano
Mean				4°	42′	36″		

$\delta = 4°\ 42'.60$

Reduction to 1895.0 = −0.58

,, ,, sea level = −0.02

$\delta = 4°\ 42'.0$

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	24th	15h	51m	2	49°	13′.7	Sano	Sutō
,,	,,	23	31	2	,,	14.1	Sutō	,,
,,	25th	9	21	2	,,	15.9	Tanakadate	Tanakadate
Mean					49°	14′.6		

$\theta = 49°\ 14'.6$

Reduction to 1895.0 = 4.99

,, ,, sea level = −0.04

$\theta = 49°\ 19'.6$

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	24th	14h	14m	0.30771	405.29	35.0C	5.9687 s	35°.4C	5°42′22″.5	12°54′45″.0	34.6C	Sutō Tanakadate	Tanakadate Sutō
,,	,,	20	9	0.30746	408.69	24.4	5.9463	25.2	5 45 54.1	13 2 57.5	23.7	Sano Sutō	,, Sano
,,	25th	8	2	0.30767	408.27	26.6	5.9441	25.8	5 45 0.6	13 1 7.5	27.4	,, Tanakadate	Tanakadate Sutō
,,	,,	14	20	*0.30779	406.71	30.6	5.9564	30.6	—	—	—	Sano	Tanakadate
Mean				0.30766									

$H = 0.30766$

Reduction to 1895.0 = −3519

,, ,, sea level = 358

$H = 0.30734$

Itiki Syuttyō (市 木 出 張)

Observations of the Seto Sea Party 1896.

Kwannondō (觀 音 堂 前)

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	25th	15h	0m	2	49°	8′.1	Tanakadate	Tanakadate

262. MIYOSI.

Nanukaiti-gawara (馬洗川南岸七日市河原)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	26th	19h	0m	4°	56′	34″	Tanakadate	Sano
,,	,,	21	37	,,	57	33	,,	Sutō
,,	,,	23	19	,,	57	49	Sutō	,,
,,	27th	2	13	,,	57	5	,,	,,
,,	,,	4	17	,,	56	23	,,	,,
,,	,,	5	13	,,	55	26	,,	,,
,,	,,	6	37	,,	54	5	Tanakadate	Sano
,,	,,	7	54	,,	54	15	,,	,,
,,	,,	9	17	,,	55	16	Sano	Tanakadate
,,	,,	10	40	,,	57	57	Tanakadate	Sano
,,	,,	12	22	,,	61	8	Sutō	,,
,,	,,	14	22	,,	63	0	,,	,,
,,	,,	16	8	,,	59	25	,,	,,
,,	,,	17	59	,,	56	26	Sano	,,
,,	,,	21	8	,,	58	36	Sutō	,,
Mean				4	57′	38″		

$\delta = 4°\ 57'.63$

Reduction to 1895.0 = −0.74

,, ,, sea level = −0.01

$\delta = 4°\ 56'.9$

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	27th	15h	1m	2	49°	3′.9	Sano	Sutō
,,	,,	15	51	2	,,	7.0	,,	,,
,,	,,	22	8	2	,,	9.3	Sutō	Sano
Mean					49	6′.7		

$\theta = 49°\ 6'.7$

Reduction to 1895.0 = 4.40

,, ,, sea level = −0.02

$\theta = 49°\ 11'.1$

HORIZONTAL INTENSITY (H)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 26th 21h 6m	0.30565	408.26	25°.4C	5.9657 s	25°.6C	5°47′16″.2	13° 5′53″.1	25°.3C	Sano Tanakadate	Tanakadate Sano
,, 27th 7 29	0.30612	408.73	21.4	5.9565	23.9	5 47 12.5	13 6 6.2	25.0	Sano Tanakadate	Tanakadate Sano
,, ,, 13 34	0.30594	404.46	36.0	5.9917	36.0	5 43 43.8	12 58 8.8	35.9	Sano Sutō	Sutō Sano
Mean	0.30590									

$H = 0.30590$

Reduction to 1895.0 = −3327

,, ,, sea level = 192

$H = 0.30559$

Miyosi Syuttyō (三 次 出 張)

Observations of the Seto Sea Party, 1896.

(1) **High Common School** (高等小學校運動場)

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	27th	20h	19m	2	49	30′.6	Sutō	Sutō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib2.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 27th 17h 23m	*0.30280	405.32	31°.3C	6.0157 s	31.3C	—	—	—	Sano	Sutō

(2) **Matubara** (字 松 原)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 27th 22h 3m	2	49 14.4	Sano	Sutō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 27th 19h 16m	*0.30398	407.45	27.8C	5.9880 s	27.8C	—	—	—	Sano	Sutō

263. AI.

Common School (阿井尋常小學校)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				θ			Observer	Recorder
July	29th	1h	43m	4°	55′	35″	Tanakadate	Tanakadate
..	..	4	0	..	54	48	..	..
..	..	5	16	..	54	11	..	..
..	..	7	13	..	54	59	..	..
..	..	8	51	..	52	55	..	..
..	..	10	13	..	55	19	..	..
..	..	12	10	..	57	58	..	Sano
,,	..	12	47	..	58	45	Sutō	..
..	..	15	9	..	58	42	..	..
..	..	16	19	..	57	19	..	,,
..	..	18	47	..	56	53	..	Sutō
..	..	19	57	..	56	13	..	Sano
..	..	21	38	..	56	48	..	..
Mean				4°	56′	1″		

$\delta = 4°\ 56'.02$

Reduction to 1895.0 = $-0'.93$

,, ,, sea level = $-0'.03$

$\delta = 4°\ 55'.1$

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	28th	6h	42m	2	49°	32.5	Tanakadate	Tanakadate
,,	29th	15	53	2	..	31.4	Sutō	Sano
,,	,,	19	17	2	..	33.0	Sano	Sutō
Mean					49	32.3		

$\theta = 49°\ 39'.3$

Reduction to 1895.0 = $4'.90$

,, ,, sea level = $-0'.04$

$\theta = 49°\ 37'.2$

HORIZONTAL INTENSITY (*H*)

Observations of the Seto Sea Party, 1895.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 29th 8h 22m	0.30765	406.51	27°.4C	5.9587 s	27°.2C	5° 44′ 47″.5	13° 0′ 32″.5	27°.7C	Sutō, Tanakadate	Tanakadate, Sutō
„ „ 14 40	0.30740	404.85	35.2	5.9751	35.7	5 42 26.2	12 55 6.9	34.8	Sano, Sutō	„, Sano
„ „ 21 19	0.30770	407.52	26.4	5.9517	26.7	5 44 42.5	13 0 33.8	26.1	Sano, Sutō	Sutō, Sanō
Mean	0.30758									

$H=$ 0.30758
Reduction to 1895.0 $=$ -3371
„ „ sea level $=$ 413
$H=$ 0.30728

Ai Syuttyō (阿 井 出 張)

Observations of the Seto Sea Party, 1896.

(阿井尋常小學校ノ下流ニアル河原，堤防ヲ距ル三間餘)

Date and Hour (Mean Local Time).	Needle No.	θ	Observer	Recorder
July 29th 8h 2m	2	49° 37′.3	Sutō	Sano

Date and Hour (Mean Local Time)	*H*	*M*	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 29th 10h 10m	*0.30651	405.61	32°.7C	5.9769 s	32°.7C	—	—	—	Sano	Sutō

264. IMAITI.

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 31st 8h 48m	4° 48′ 52″	Tanakadate	Sutō
„ „ 9 51	„ 50 15	„	Sano
„ „ 11 38	„ 52 38	Sutō	Sutō
„ „ 12 32	„ 54 18	Tanakadate	„
„ „ 13 52	„ 55 35	„	„
„ „ 14 36	„ 55 10	Sutō	Sano
„ „ 15 54	„ 53 58	„	„
„ „ 17 1	„ 52 45	Sutō	Sano
„ „ 19 22	„ 51 23	Sano	Sutō
„ „ 21 21	„ 51 8	Tanakadate	Tanakadate
„ „ 23 26	„ 50 59	„	„
Aug 1st 0 49	„ 50 50	„	„
„ „ 2 29	„ 50 29	„	„
„ „ 5 10	„ 50 6	„	„
„ „ 7 11	„ 47 51	„	„
„ „ 8 38	„ 48 44	„	Sutō, Sano
„ „ 9 40	„ 50 10	„	Tanakadata
Mean	4° 51′ 24″		

$\delta=4°$ 51′.40
Reduction to 1895.0 $=$ -1.04
„ „ sea level $=$ 0.00
$\delta=4°$ 50′.4

DIP (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 31st 10h 52m	2	50° 3.4	Sutō	Sano
,, ,, 15 21	1	49 54.6	Sano	Sutō
,, ,, 17 42	2	,, 58.7	Sutō	Sano
Aug. 1st 6 19	2	50 1.7	Tanakadate	Tanakadate
Mean		49° 59.6		

$\theta = 49°$ 59.6
Reduction to 1895.0 = 5.06
,, ,, sea level = 0.00
$\theta = 50°$ 4.7

HORIZONTAL INTENSITY (H)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 31st 13h 25m	0.30282	406.70	29.1C	s 6.0057	29.3C	5°49′12.″5	13°10′27.″5	28.9C	Sutō / Tanakadate	Tanakadate / Sutō
,, ,, 21 49	0.30307	407.27	27.0	5.9991	27.2	5 49 31.2	13 11 16.2	26.8	Sano / Sutō	,, / Sano
Aug. 1st 8 12	0.30296	407.26	27.9	5.9996	27.8	5 49 28.8	13 11 3.8	27.9	,, / Tanakadate	Tanakadate / Sutō
Mean	0.30295									

$H =$ 0.30295
Reduction to 1895.0 = −3381
,, ,, sea level = 000
$H =$ 0.30261

Imaiti Syuttyō (今 市 出 張)

Observations of the Seto Sea Party, 1896.

Sanzyūsangasyo Kwannondō (三十三所觀音堂)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 1st 10h 23m	2	50 1.4	Sutō	Sano

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 1st 9h 55m	*0.30129	406.36	29.8C	s 6.0231	29.8C	—	—	—	Sano	Sutō

265. MATUE.

Near Kentyō (島 根 縣 廳 對 岸)

DECLINATION (δ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 1st 23h 52m	4° 52′ 10″	Sutō	Sutō
,, 2nd 0 30	,, 51 57	,,	,,
,, ,, 2 14	,, 50 23	,,	,,
,, ,, 4 51	,, 50 13	,,	,,
,, ,, 5 58	,, 49 23	,,	,,
,, ,, 6 31	,, 48 41	Tanakadate	Sano
,, ,, 8 9	,, 50 42	,,	,,
,, ,, 8 58	,, 52 33	,,	,,
,, ,, 10 25	,, 53 42	Sano	Tanakadate
,, ,, 11 3	,, 54 26	Tanakadate	Sano
	To be continued		

Continued

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	2nd	12h	5m	4°	56′	51″	Tanakadate	Sano
,,	,,	13	29	,,	59	8	Sutō	Sutō
,,	,,	14	31	,,	57	36	,,	,,
,,	,,	15	33	,,	56	6	,,	,,
,,	,,	16	36	,,	54	6	,,	,,
,,	,,	18	1	,,	52	38	Sano	Sano
,,	,,	18	46	,,	50	24	,,	,,
,,	,,	19	9	,,	56	32	Tanakadate	,,
,,	,,	20	6	,,	54	11	,,	Sutō
,,	,,	21	12	,,	53	32	,,	,,
,,	,,	23	21	,,	53	1	,,	,,
Mean				4°	53′	14″		

$\delta = 4°\ 53.'23$
Reduction to 1895.0 = -1.19
,, ,, sea level = 0.00
$\delta = 4°\ 52.'0$

DIP (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	2nd	9h	47m	2	49°	48.'4	Tanakadate	Sano
,,	,,	14	8	2	,,	48.8	Sutō	Sutō
,,	3rd	9	35	2	,,	48.1	Sano	,,
Mean					49°	48.'4		

$\theta = 49°\ 48.'4$
Reduction to 1895.0 = 4.75
,, ,, sea level = 0.00
$\theta = 49°\ 53.'2$

HORIZONTAL INTENSITY (H)
(*Value deduced from Vibration only by assuming Value of M.)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug	2nd	8h	36m	0.30258	406.55	28.°6C	s 6.0084	28.°4C	5°49′30.″0	13°11′30.″0	28.°8C	{ Sano Tanakadate	{ Tanakadate Sano
,,	,,	12	37	*0.30256	405.11	33.9	6.0187	33.9	(5 48 20.0	13 8 26.2	33.9)	{ Sano Tanakadate	{ Tanakadate Sano
,,	,,	17	48	*0.30252	406.72	28.5	6.0080	28.5	—	—	—	Sutō	Tanakadate
,,	,,	22	55	0.30214	407.10	26.7	6.0080	27.0	5 50 23.8	13 13 10.0	26.4	,,	,,
Mean				0.30245									

$H = 0.30245$
Reduction to 1895.0 = -3283
,, ,, sea level = 000
$H = 0.30212$

Matue Syuttyō (松 江 出 張)

Observations of the Seto Sea Party, 1896.

Near Electric lightning Plant (電 燈 會 社 附 近)

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	2nd	19h	9m	*0.30840	406.87	28.°0C	s 5.9493	28.°0C	—	—	—	Sutō	Tanakadate
,,	,,	19	30	*0.30095	406.87	27.9	6.0224	27.9	—	—	—	,,	,,
Mean				0.28217									

266. KUROSAKA.

Indigo Field (藍 畑 中)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	4th	12h	35m	4	55′	52″	Sutō	Sano
,,	,,	13	10	,,	56	26	Tanakadate	,,
,,	,,	14	27	,,	55	58	Sutō	Tanakadate
,,	,,	15	31	,,	55	20	,,	Sano
,,	,,	16	42	,,	54	37	,,	,,
,,	,,	17	33	,,	54	14	,,	,,
,,	,,	19	58	,,	54	18	,,	,,
,,	,,	22	3	,,	53	41	,,	Tanakadate
,,	,,	23	6	,,	53	29	Tanakadate	,,
,,	5th	3	5	,,	53	35	,,	,,
,,	,,	6	59	,,	54	13	,,	,,
,,	,,	8	22	,,	52	19	Sutō	,,
,,	,,	9	28	,,	53	54	,,	Sutō
,,	,,	10	37	,,	55	39	,,	,,
,,	,,	11	44	,,	55	35	,,	,,
,,	,,	12	57	,,	56	39	Tanakadate	,,
Mean				4°	53′	59″		

	δ =	4° 53′.98
Reduction to	1895.0 =	−1.15
,, ,,	sea level =	−0.01
	δ =	4° 52′.8

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	4th	19h	11m	2	49°	26′.2	Sano	Tanakadate
,,	5th	7	10	2	,,	28.3	Tanakadate	Sutō
,,	,,	12	34	2	,,	27.6	Sutō	Tanakadate
Mean					49°	27′.4		

	θ =	49° 27′.4
Reduction to	1895.0 =	4.30
,, ,,	sea level =	+0.01
	θ =	49° 31′.7

HORIZONTAL INTENSITY (H)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 4th 13h 55m	0.30496	406.27	29°.3C	5s.9868	29.2C	5°46′12″.5	13°3′ 26″.2	29°.5C	Tanakadate Sutō	Sutō Tanakadate
,, ,, 22 20	0.30540	407.63	24.8	5.9727	24.8	5 17 25.0	13 6 36.2	24.8	,, Tanakadate	,, Sutō
,, 5th 8 57	0.30536	406.54	28.5	5.9803	28.1	5 46 13.8	13 3 58.8	29.0	Sutō Tanakadate	Tanakadate Sutō
Mean	0.30524									

	H =	0.30524
Reduction to	1895.0 =	−3214
,, ,,	sea level =	116
	H =	0.30493

Kurosaka Syuttyō (黒 坂 出 張)
Hiziri Zinsya (聖 神 社)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 5th 15h 13m	2	49° 34!0	Tanakadate	Sutō

Date and Hour (Mean Local Time)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 5th — —	*0.30399	405.50	31.9C	s 6.0026	31°.9C	—	—	—	Sutō	Tanakadate

267. TŌZYŌ.

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time)	δ	Observer	Recorder
Aug. 6th 18h 12m	4° 42′ 54″	Tanakadate	Sutō
,, ,, 20 33	,, 42 34	,,	,,
,, ,, 21 17	,, 42 34	Sutō	Tanakadate
,, ,, 22 45	,, 42 29	Tanakadate	Sutō
Mean	4° 42′ 36″		

$\delta = 4°\ 42!60$
Reduction to 1895.0 = -0.83
,, ,, sea level = -0.02
$\delta = 4°\ 41!7$

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No	θ	Observer	Recorder
Aug. 6th 19h 51m	2	48° 49!2	Sutō	Sutō

$\theta = 48°\ 49!2$
Reduction to 1895.0 = 4.16
,, ,, sea level = -0.04
$\theta = 48°\ 53!3$

HORIZONTAL INTENSITY (H)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 6th 22h 48m	0.30955	407.95	23°.3C	s 5.9308	23°.8C	5 43′ 5″.0	12 56′46″.2	22°.8C	{Sutō / Tanakadate	{Tanakadate / Sutō

$H = 0.30955$
Reduction to 1895.0 = -3226
,, ,, sea level = 371
$H = 0.30926$

268. HUKUYAMA.

Middle School (福山尋常中學校)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	8th	12h	36m	4°	45′	26″	Tanakadate	Sutō
,,	,,	13	16	,,	44	42	,,	,,
,,	,,	14	15	,,	44	5	,,	Tanakadate
,,	,,	15	12	,,	43	22	Sutō	,,
,,	,,	16	8	,,	42	42	,,	,,
,,	,,	17	31	,,	41	32	Tanakadate	Sutō
,,	,,	18	41	,,	41	11	Sutō	Tanakadate
,,	,,	19	34	,,	42	43	,,	Sutō
,,	,,	20	28	,,	42	28	Tanakadate	Tanakadate
,,	,,	23	7	,,	41	46	Sutō	Sutō
,,	9th	1	30	,,	41	4	,,	,,
,,	,,	3	45	,,	40	32	,,	,,
,,	,,	6	6	,,	38	23	,,	,,
,,	,,	7	27	,,	38	1	Tanakadate	Tanakadate
,,	,,	8	21	,,	37	39	,,	,,
,,	,,	8	56	,,	39	3	,,	Sutō
,,	,,	9	28	,,	39	55	Sutō	Tanakadate
,,	,,	10	3	,,	40	59	,,	Sutō
,,	,,	10	35	,,	42	1	,,	Tanakadate
,,	,,	11	12	,,	43	44	Tanakadate	Sutō
,,	,,	11	43	,,	44	38	Sutō	Tanakadate
,,	,,	12	19	,,	45	6	,,	,,
,,	,,	12	59	,,	44	57	,,	,,
,,	,,	13	47	,,	44	27	Tanakadate	Sutō
,,	,,	14	12	,,	43	44	Sutō	Tanakadate
,,	,,	14	41	,,	43	49	,,	,,
,,	,,	15	11	,,	44	13	Tanakadate	Sutō
,,	,,	15	44	,,	43	47	,,	,,
,,	,,	16	25	4°	43	8	Sutō	Tanakadate
,,	,,	17	24	,,	41	49	Tanakadate	Sutō
,,	,,	17	52	,,	41	44	Sutō	Tanakadate
,,	,,	18	41	,,	42	33	,,	,,
,,	,,	19	9	,,	42	11	Tanakadate	,,
,,	,,	21	4	,,	41	51	,,	,,
,,	,,	23	7	,,	40	47	,,	,,
,,	10th	1	11	,,	40	23	,,	,,
,,	,,	4	58	,,	39	32	,,	,,
,,	,,	7	18	,,	37	2	,,	,,
,,	,,	9	7	,,	37	32	Sutō	Sutō
,,	,,	9	28	,,	38	21	,,	,,
,,	,,	10	23	,,	40	57	Tanakadate	,,
,,	,,	11	29	,,	44	2	Sutō	Tanakadate
,,	,,	12	15	,,	46	7	Tanakadate	Sutō
,,	,,	13	18	,,	46	42	,,	,,
,,	,,	14	39	,,	44	59	Sutō	Tanakadate
,,	,,	15	47	,,	42	26	Tanakadate	Sutō
,,	,,	16	36	,,	42	44	Sutō	Tanakadate
Mean				4°	41′	26″		

$\delta = 4°\ 41'.43$

Reduction to 1895.0 = -0.74

,, ,, sea level = 0.00

$\delta = 4°\ 40'.7$

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	8th	18h	1m	2	48°	27′.9	Tanakadate	Sutō
,,	9th	6	56	2	,,	30.6	Sutō	,, Tanakadate
,,	10th	14	8	2	,,	28.5	Tanakadate	Sutō
,,	,,	15	17	2	,,	27.7	Sutō	Tanakadate
Mean					48°	28′.7		

$\theta = 48\ \ 48'.7$

Reduction to 1895.0 = 3.70

,, ,, sea level = 0.00

$\theta = 48\ \ 32'.4$

HORIZONTAL INTENSITY (*H*)
(**Value deduced from Vibration only by assuming Value of M.*)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 8th 9^{h} 30^{m}	*0.30798	406.99	26°.6C	$\overset{s}{5}$.9523	26°.6C	—	—	—	Tanakadate	Sutō
,, ,, 22 19	0.30774	407.71	24.6	5.9503	25.1	5°44′17″.5	12°58′38″.8	24.1C	,, Sutō	,, Tanakadate
,, 10th 8 0	*0.30770	407.12	26.2	5.9540	26.2	—	—	—	,,	,,
,, ,, 8 29	0.30821	406.58	27.8	5.9521	27.3	5 43 0.0	12 56 27.5	28.3	,, Tanakadate	,, Sutō
,, ,, 12 55	0.30748	404.78	33.6	5.9739	33.5	5 42 3.8	12 53 57.5	33.7	Sutō Tanakadate	Tanakakate Sutō
Mean	0.30782									

H = 0.30782
Reduction to 1895.0 = −3184
,, ,, sea level = 000
H = 0.30750

Hukuyama Syuttyō (福山出張)

Observations of the Seto Sea Party, 1896.
(多治木川口街道)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 16th 18^{h} 34^{m}	2	48° 26′.6	Tanakadate	Sutō

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 10th 17^{h} 58^{m}	*0.30777	406.58	27°.8C	$\overset{s}{5}$.9576	27.8C	—	—	—	Sutō	Tanakadate

269. HAMABATA.

Hamahata No. 1281. (松山村字濱畑千二百八十一番地)

DIP (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No	θ	Observer	Recorder
Aug. 11th 15^{h} 13^{m}	2	48° 47′.8	Sutō	Tanakadate

θ = 48° 47′.8
Reduction to 1895.0 = 3.71
,, ,, sea level = −0.01
θ = 48° 51′.5

270. TAKAHASI.

Near Epidemic Asylum (高梁避病院附近ノ畑中)

DECLINATION (δ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 11th 14^{h} 19^{m}	4° 51′ 36″	Tanakadate	Sutō
,, ,, 15 42	,, 48 56	,,	,,
,, ,, 16 54	,, 46 58	Sutō	Tanakadate
,, ,, 17 39	,, 46 11	,,	Sutō
,, ,, 19 45	,, 47 27	Tanakadate	Tanakadate
,, ,, 21 15	,, 47 1	,,	Sutō
,, ,, 22 44	,, 46 47	Sutō	,,
,, 12th 1 35	,, 46 32	,,	,,
,, ,, 4 34	,, 45 51	,,	,,
	To be continued		

Continued

Date and Hour. (Mean Local Time.)				δ			Observer	Recorder
Aug.	12th	5	38	4°	44′	53″	Sutō	Sutō
,,	,,	6	34	,,	43	2	,,	,,
,,	,,	7	39	,,	42	16	Tanakadate	,,
,,	,,	9	8	,,	42	17	,,	Tanakadate
,,	,,	10	19	,,	45	1	,,	,,
,,	,,	11	35	,,	48	47	Sutō	,,
,,	,,	12	49	,,	51	7	Tanakadate	Sutō
,,	,,	14	9	,,	50	11	,,	Tanakadate
,,	,,	15	13	,,	49	23	,,	,,
Mean				4°	46′	30″		

$\delta = 4°\ 46'.50$
Reduction to 1895.0 = -1.05
,, ,, sea level = 0.01
$\delta = 4°\ 45'.4$

DIP (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ	Observer	Recorder
Aug.	11th	22h	5m	2	48° 44.7	Tanakadate	Sutō
,,	12th	8	24	2	,, 46.3	,,	,,
Mean					48° 45.5		

$\theta = 48°\ 45'.5$
Reduction to 1895.0 = 3.70
,, ,, sea level = -0.01
$\theta = 48°\ 49'.2$

HORIZONTAL INTENSITY (H)
(*Value deduced from Vibration only by assuming Value of M.)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 11st 19h 13m	0.30699	406.80	26.2C	s 5.9628	26°.4C	5°14′47″.5	13° 0′36″.2	25°.9C	Sutō Tanakadate	Tanakadate Sutō
,, 12th 7 23	0.30697	406.84	25.3	5.9633	25.4	5 14 50.0	13 0 46.3	25.3	,, Sutō	,, Tanakadate
,, ,, 13 24	*0.30697	403.78	35.3	5.9867	35.3	—	—	—	,,	,,
,, ,, 13 45	0.30708	403.97	34.7	5.9837	34.5	5 42 3.8	12 54 28.8	34.9	,, Tanakadate	,, Sutō
Mean	0.30700									

$H = 0.30700$
Reduction to 1895.0 = -3097
,, ,, sea level = 102
$H = 0.30670$

Takahashi Syuttyō (高 梁 出 張)

Observations of the Seto Sea Party, 1896.

Play ground of Common School (高梁尋常小學校運動場)

Date and Hour (Mean Local Time.)				Needle No.	θ	Observer	Recorder
Aug	12th	16h	58m	2	48° 44.8	Sutō	Sutō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Maan Deflections φ_1	Maan Deflections φ_2	Temp. t_D	Observer	Recorver
Aug. 12th 16h 22m	*0.30707	402.92	38°.0C	s 5.9921	38°.0C	—	—	—	Sutō	Tanakadate

271. TOKUSIMA.

Adakemura No. 6. (德嶋市安宅村第六號字百間地東)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 14th 13h 29m	4° 33′ 55″	Tanakadate	Sutō
" " 13 43	" 33 53	"	"
" " 15 7	" 32 47	"	"
" " 16 30	" 31 17	Sutō	"
" " 17 31	" 30 38	"	"
" " 19 23	" 30 43	Tanakadate	Tanakadate
" " 21 26	" 30 43	"	Sutō
" " 22 59	" 30 13	"	"
" 15th 0 30	" 29 46	"	Tanakadate
" " 4 53	" 28 55	"	"
" " 6 24	" 28 11	"	"
" " 7 35	" 27 2	Sutō	"
" " 8 52	" 27 1	"	Sutō
" " 9 50	" 28 52	"	"
" " 11 6	" 32 2	"	"
" " 12 48	" 33 45	Tanakadate	"
" " 13 57	" 32 30	"	"
" " 15 6	" 32 3	Sutō	Tanakadate
" " 16 10	" 32 6	"	Sutō
Mean	4 30′ 11″		

$\delta = 4°\ 30'.18$

Reduction to 1895.0 = −0.78

" " sea level = 0.00

$\delta = 4°\ 29'.4$

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 14th 18h 37m	2	47° 50′.0	Sutō	Tanakadate
" 15th 7 2	2	" 45.2	Tanakadate	Sutō
" " 12 3	2	" 47.4	Sutō	"
Mean		47° 47′.5		

$\theta = 47\ 47'.5$

Reduction to 1895.0 = 2.12

" " sea level = 0.00

$\theta = 47°\ 49'.6$

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 14th 22h 28m	0.30834	406.43	26°.6C	5.9537 s	26°.9C	5°43′ 1″.2	12°56′37″.5	26°.3C	Sutō	Tanakadate
" 15th 8 20	*0.30818	404.93	31.3	5.9580	30.6	(5 41 46.2	12 53 45.0	31.3)	Tanakadate / Sutō	Sutō / Tanakadate
" " 13 29	0.30836	405.94	28.0	5.9559	27.6	5 42 20.0	12 54 59.4	28.4	" / Tanakadate	" / Sutō
Mean	0.30829									

H = 0.30829

Reduction to 1895.0 = −2693

" " sea level = 000

H = 0.30802

Tokusima Syuttyō (徳 嶋 出 張)

Observations of the Seto Sea Party, 1896.

Hukusima, Miya no Nisi (福島町宮ノ西, 畑ノ中央)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 15th 17h 45m	2	17 47.7	Tanakadate	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 15th 16h 45m	*0.30857	405.56	29.3C	s 5.9576	29.3C	—	—	—	Tanakadate	Sutō
,, ,, — —	*0.30844	405.50	29.5	5.9592	29.5			—	Sutō	Tanakadate
Mean	0.30851									

272. WAKIMATI.

Uenohara (上 野 原)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	17th	16	5	4°	32′	3″	Tanakadate	Sano
,,	,,	17	5	,,	31	56	Sutō	,,
,,	,,	19	3	,,	31	1	,,	,,
,,	,,	21	7	,,	30	56	Tanakadate	Sutō
,,	,,	23	8	,,	30	29	Sutō	,,
,,	18th	0	43	,,	30	24	,,	,,
,,	,,	2	9	,,	29	26	,,	,,
,,	,,	4	3	,,	27	23	,,	,,
Mean				4	29′	32″		

δ=4 29.53
Reduction to 1895.0= −0.72
,, ,, sea level= 0.00
θ=4 28.8

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	19th	9h	49m	4°	31′	10″	Tanakadate	Sutō
,,	,,	10	34	,,	33	15	Sutō	Tanakadate
,,	,,	11	7	,,	33	48	,,	Sano
,,	,,	12	16	,,	35	28	,,	,,
,,	,,	14	15	,,	33	42	Tanakadate	,,
,,	,,	15	16	,,	32	5	Sutō	Tanakadate
,,	,,	16	43	,,	31	27	,,	,,
,,	,,	17	39	,,	31	13	,,	,,
,,	,,	18	10	,,	31	4	,,	,,
,,	,,	21	12	,,	31	20	Sano	Sano
,,	,,	22	35	,,	30	29	,,	,,
,,	20th	2	26	,,	29	10	,,	,,
,,	,,	4	39	,,	29	22	,,	,,
,,	,,	5	50	,,	29	20	,,	,,
,,	,,	7	14	,,	28	24	Tanakadate	Sutō
,,	,,	8	21	,,	28	30	Sutō	,,
,,	,,	9	20	,,	29	48	,,	,,
Mean				4°	31′	5″		

δ=4° 31.08
Reduction to 1895.0= −0.72
,, ,, sea level= 0.00
δ=4° 30.4

DIP (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 17th 18h 26m	2	47° 45.3	Sutō	Sano
„ 19th 12 15	2	„ 52.6	Sano	Sutō
„ „ 17 13	2	„ 50.7	Sutō	Tanakadate
„ 20th 6 47	2	„ 51.0	Sano	{ Sano Sutō
„ „ 9 33	2	„ 50.2	Tanakadate	Tanakadate
Mean		47° 50.0		

$\theta = 47°\ 50.0$
Reduction to 1995.0 = 2.45
„ „ sea level = −0.01
$\theta = 47°\ 52.4$

HORIZONTAL INTENSITY (H)
(*Value deduced from Vibration only by assuming Value of M.)
Observations of the Seto Sea Party 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 17th 20h 30m	0.30875	406.27	26°.7C	s 5.9512	27°.1C	5°42′27″.5	12°55′20″.0	26°.3C	{ Sano Tanakadate	{ Tanakadate Sano
„ 18th 13 54	0.30861	404.38	32.8	5.9675	33.6	5 40 58.8	12 51 57.5	32.0	{ Sano Tanakadate	{ Tanakadate Sano
„ 19th 6 15	*0.30825	406.10	27.2	5.9657	27.9	(5 42 37.5	12 55 30.6	27.2)	Tanakadate	Sutō
„ 20th 7 50	0.30854	407.10	23.9	5.9452	23.6	5 43 15.0	12 57 10.0	24.3	{ Sutō Tanakadate	{ Tanakadate Sutō
Mean	0.30854									

$H = 0.30854$
Reduction to 1895.0 = −2841
„ „ sea level = 63
$H = 0.30826$

273. ŌSATO.

Ōsatomura (大 里 村)

DECLINATION (δ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 21st 21h 1m	4 24′ 5″	Tanakadate	Sutō
„ „ 22 59	„ 23 55	„	Tanakadate
„ 22nd 0 33	„ 23 0	„	„
„ „ 2 0	„ 21 53	„	„
„ „ 4 57	„ 20 20	„	„
„ „ 6 20	„ 19 16	„	Sutō
„ „ 7 21	„ 19 36	Sutō	Sano
„ „ 8 47	„ 22 16	„	„
„ „ 10 2	„ 25 11	Sano	Sutō
„ „ 11 8	„ 27 4	Sutō	Sano
„ „ 12 28	„ 26 53	„	„
„ „ 13 41	„ 25 9	Tanakadate	„
„ „ 15 17	„ 23 48	Sutō	Sutō
„ „ 16 10	„ 23 21	„	„
„ „ 17 41	„ 22 45	„	Sano
„ „ 19 0	„ 21 58	„	„
Mean	4 23′ 2″		

$\delta = 4°\ 23.03$
Reduction to 1895.0 = −0.43
„ „ sea level = 0.00
$\delta = 4°\ 22.6$

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 21st 18h 55m	2	47° 15.'5	Sano	Sutō
,, 22nd 11 53	2	.. 16.3	Sutō	Sano
,, ,, 17 17	2	.. 14.7	..	,,
Mean		47° 15.'5		

$\theta = 47° \quad 15.'5$
Reduction to 1895.0 = 1.80
,, ,, sea level = 0.00
$\theta = 47° \quad 17.'3$

HORIZONTAL INTENSITY (H)

(*Value deduced from Vibration only by assuming Value of M.)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 22nd 8h 1m	0.30951	406.42	26.1C	s 5.9410	25.6C	5 41′18.″8	12 52′22.″5	26.7C	Sano Sutō	Sutō Sano
,, ,, 13 0	*0.31027	405.38	29.0	5.9434	29.0	—	—	—	,,	Tanakadate
,, ,, 13 21	0.31040	405.08	29.7	5.9431	29.6	5 39 30 .0	12 48 40.0	29.9	.. Tanakadate	,, Sutō
,, .. 17 54	*0.30980	405.88	27.4	5.9432	27.4	—	—	—	Sano	,,
,, ,, 18 31	0.30936	406.01	26.7	5.9471	27.2	5 41 23 .8	12 52 41 .2	26.3	,, Sutō	,, Sano
Mean	0.30987									

$H = 0.30987$
Reduction to 1895.0 = −2823
,, ,, sea level = 000
$H = 0.30959$

274. NAWARI.

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time)	δ	Observer	Recorder
Aug. 24th 1h 30m	1° 17′ 58″	Tanakadate	Tanakadate
,, ,, 4 52	.. 18 33	..	..
.. .. 5 48	.. 17 50	,,	..
.. ,, 6 36	.. 16 45	,,	..
.. .. 7 23	,, 16 30	..	..
,, .. 8 47	.. 17 28	,,	Sutō
.. ,, 10 58	,, 22 25	Sutō	Sano
.. .. 11 40	.. 23 17	,,	,,
,, .. 12 56	,, 24 41	,,	..
.. ,, 14 47	.. 22 29	Tanakadate	,,
.. ,, 15 45	.. 21 13	..	..
.. ,, 17 14	.. 20 13	Sano	,,
.. ,, 18 24	.. 20 8	,,	..
.. .. 19 23	.. 20 10	Tanakadate	..
,, .. 20 59	.. 19 29	,,	,,
.. .. 22 40	,, 20 13	..	Sutō
,, 25th 0 13	,, 19 30	..	,,
.. ,, 1 30	.. 19 5	Sutō	Tanakadate
Mean	1° 19′ 52″		

$\delta = 1° \quad 19.'87$
Reduction to 1895.0 = −0.31
,, ,, sea level = 0.00
$\delta = 1° \quad 19.'56$

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 24th 10h 11m	2	47 6.4	Sutō	Sano
" " 13 53	2	" 8.5	Tanakadate	Sutō
" " 23 25	2	" 6.8	Sutō	Tanakadate
Mean		47° 7.2		

$\theta = 47°\ 7.2$

Reduction to 1895.0 = 1.98

" " sea level = 0.00

$\theta = 47°\ 9.2$

HORIZONTAL INTENSITY (H)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 24th 8h 24m	0.31037	405.33	29.5C	5.9403	29.4C	5 39′32.″5	12 48′25.″0	29.6C	Sutō / Tanakadate	Tanakadate / Sutō
" " 12 22	0.31046	404.76	31.2	5.9457	31.5	5 39 3.1	12 47 23.8	30.9	Sano / Sutō	" / Sano
" " 20 33	0.31062	406.46	25.3	5.9315	25.6	5 40 32.5	12 50 55.0	25.0	Sano / Tanakadate	Tanakadate / Sano
Mean	0.31048									

$H = 0.31048$

Reduction to 1895.0 = −2930

" " sea level = 000

$H = 0.31019$

Nawari Syuttyō (奈半利出張)

Observations of the Seto Sea Party, 1896.

Grave yard near Tenzinmatubara (天神松原新平民墓地)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 24th 17h 51m	2	47 5.9	Tanakadate	Sutō

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 24th 18h 51m	*0.31017	406.03	26.6C	5.9384	27.1C	—	—	—	Tanakadate	Sutō

275. KŌTI.

Bōtutumi (浦戸港棒堤)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 26th 8h 59m	4 23′ 50″	Tanakadate	Sano
" " 9 31	" 24 17	"	"
" " 10 37	" 26 38	"	"
" " 12 33	" 27 18	"	"
" " 14 4	" 27 1	"	"
" " 15 45	" 24 10	Sano	"
" " 17 1	" 23 13	Tanakadate	"
" " 19 14	" 24 2	"	"
	To be continued		

Continued

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	26th	21h	15m	4°	23′	52″	Tanakadate	Tanakadate
,,	,,	23	25	,,	23	27	,,	,,
,,	27th	1	19	,,	23	12	Sano	Sano
,,	,,	5	20	,,	22	28	,,	,,
,,	,,	6	30	,,	20	37	Tanakadate	,,
,,	,,	7	44	,,	20	32	,,	Tanakadate
,,	,,	9	30	,,	23	14	,,	,,
,,	,,	10	20	,,	25	18	,,	,,
Mean				4	23′	50″		

δ = 4° 23′.83
Reduction to 1895.0 = −0.23
,, ,, sea level = 0.00
δ = 4° 23′.6

DIP (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	26th	12h	2m	2	47°	13′.8	Tanakadate	Sano
,,	,,	18	9	2	,,	15.2	Sano	Tanakadate
,,	27th	8	39	2	,,	15.3	Tanakadate	,,
Mean					47	14′.8		

θ = 47° 14′.8
Reduction to 1895.0 = 2.64
,, ,, sea level = 0.00
θ = 47 17′.4

HORIZONTAL INTENSITY (*H*)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 26th 13h 38m	0.31117	404.12	33.4C	s 5.9435	33.6C	5 37′40″.6	12 44′11″.9	33°.2C	Sano Tanakadate	Tanakadate Sano
,, ,, 20 34	0.31090	405.95	26.1	5.9328	26.8	5 39 37.5	12 48 38.8	26.0	Sano	Tanakadate
,, 27th 7 19	0.31093	406.58	25.2	5.9273	25.3	5 40 7.5	12 49 45.0	25.1	,, Tanakadate	,, Sano
Mean	0.31100									

H = 0.31100
Reduction to 1895.0 = −3139
,, ,, sea level = 000
H = 0.31069

276. ŌTOTI

DECLINATION (δ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	28th	12	16	4	31′	50″	Tanakadate	Sano
,,	,,	13	29	,,	31	20	,,	,,
,,	,,	14	23	,,	30	23	,,	,,
,,	,,	15	43	,,	27	44	,,	,,
,,	,,	16	30	,,	26	15	,,	,,
,,	,,	17	48	,,	25	2	,,	,,
,,	,,	19	21	,,	25	18	,,	,,
,,	,,	21	50	,,	24	41	,,	,,
,,	29th	1	10	,,	24	55	,,	Tanakadate
,,	,,	2	9	,,	24	38	,,	,,
,,	,,	5	22	,,	23	23	,,	,,
,,	,,	6	36	,,	21	28	,,	,,
,,	,,	6	58	,,	21	2	,,	,,
,,	,,	8	12	,,	20	33	,,	Sano
,,	,,	10	3	,,	24	26	,,	,,
,,	,,	10	53	,,	26	26	,,	Tanakadate
,,	,,	11	33	,,	27	36	,,	,,
Mean				4	25′	23″		

δ = 4° 25′.38
Reduction to 1895.0 = −0.43
,, ,, sea level = −0.02
δ = 4° 24′.9

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 28th 15h 8m	2	47° 30'.8	Tanakadate	Sano
,, 29th 1 16	2	,, 30.1	Sano	Tanakadate
,, ,, 9 10	2	,, 29.0	Tanakadate	Sano
Mean		47° 30'.0		

θ = 47° 30'.0
Reduction to 1895.0 = 2.49
,, ,, sea level = −0.06
θ = 47° 32'.4

HORIZONTAL INTENSITY (H)

(**Value deduced from Vibration only by assuming Value of M.*)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 28th 13h 7m	0.30992	404.23	31°.6C	5.9541 s	31.6C	5°39'13".1	12 47'51".2	31.5C	Sano Tanakadate	Tanakadate Sano
,, ,, 22 17	0.30987	407.18	22.4	5.9340	23.1	5 42 2.5	12 51 15.0	21.7	Sana Tanakadate	Tanakadate Sano
,, 29th 7 52	0.31000	407.08	24.1	5.9315	23.4	5 41 20.6	12 52 28.8	24.8	Sano Tanakadate	Tanakadate Sano
,, ,, — —	*0.31009	404.99	29.4	5.9471	29.1	—	—	—	Sano	Tanakadate
Mean	0.30997									

H = 0.30997
Reduction to 1895.0 = −3038
,, ,, sea level = 434
H = 0.30971

Ōtoti Syuttyo (大 栃 出 張)

Observations of the Seto Sea Party, 1896.

Hatiōzimiya (八王子宮境內)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 29th 13h 20m	2	47° 31'.3	Tanakadate	Sano

277. SUSAKI.

Sea Shore (海濱ノ松原)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time)	δ	Observer	Recorder
Aug. 31st 7h 46m	4° 16' 53"	Tanakadate	Sano
,, ,, 8 57	,, 18 53	,,	,,
,, ,, 10 40	,, 24 33	,,	,,
,, ,, 11 36	,, 25 59	,,	,,
,, ,, 13 24	,, 24 19	,,	,,
,, ,, 15 17	,, 22 13	,,	,,
,, ,, 16 27	,, 20 52	Sano	Tanakadate
,, ,, 18 10	,, 21 0	Tanakadate	Sano
,, ,, 20 15	,, 20 33	,,	,,
,, ,, 21 55	,, 20 1	,,	Tanakadate
,, ,, 23 49	,, 20 39	,,	,,
Sept. 1st 1 18	,, 20 11	Sano	Sano
,, ,, 3 54	,, 19 43	,,	,,
,, ,, 6 4	,, 17 43	,,	,,
,, ,, 6 55	,, 17 31	,,	,,
,, ,, 7 54	,, 17 13	Tanakadate	Tanakadate
,, ,, 8 56	,, 18 55	,,	,,
,, ,, 9 10	,, 19 29	,,	,,
,, ,, 12 16	,, 25 14	,,	Sano
Mean	4° 20' 50"		

δ = 4° 20'.83
Reduction to 1895.0 = −0.05
,, ,, sea level = 0.00
δ = 4° 20'.78

DIP (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 31st 9h 48m	2	47° 15'.6	Sano	Tanakadate
„ „ 14 28	2	„ 13.2	Tanakadate	Sano
„ „ 19 48	2	„ 14.3	„	„
Mean		47° 14'.4		

$\theta = 47°\ 14'.4$
Reduction to 1895.0 = 2.84
„ „ sea level = 0.00
$\theta = 47°\ 17'.2$

HORIZONTAL INTENSITY (H)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Aug. 31st 6h 36m	0.31086	405.29	29.9C	s 5.9351	28.7C	5°38'45".0	12°46'38".1	31.0C	{ Sano { Tanakadate	{ Tanakadate { Sano
„ „ 12 0	0.31128	404.01	33.9	5.9449	34.8	5 37 41.2	12 44 20.0	33.0	{ Sano { Tanakadate	{ Tanakadate { Sano
„ „ 22 22	0.31073	406.45	24.1	5.9305	24.6	5 40 22.5	12 50 25.0	23.7	{ Sano { Tanakadate	{ Tanakadate { Sano
Mean	0.31096									

$H = 0.31096$
Reduction to 1895.0 = −3280
„ „ sea level = 000
$H = 0.31063$

Susaki Syuttyō (須 崎 出 張)

Observations of the Seto Sea Party, 1896.
Revenue office (收稅署前芝地)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 1st 15h 21m	2	47 14'.9	Sano	Tanakadate

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflection φ_1	φ_2	Temp. t_D	Observer	Recorder
Sept 1st 15h 5m	*0.31159	404.84	29.0C	s 5.9336	29.0C	—	—	—	Sano	Tanakadate

278. NAKAMURA.

Nakamura, Ōsima (中村大字大嶋)

DECLINATION (δ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 3rd 12h 14m	4 16' 30"	Tanakadate	Sano
„ „ 13 13	„ 16 47	„	„
„ „ 14 26	„ 14 50	„	„
„ „ 15 44	„ 12 35	„	„
„ „ 18 1	„ 11 49	„	„
„ „ 19 0	„ 11 50	Sano	„
„ „ 19 30	„ 11 40	Tanakadate	„
„ „ 21 0	„ 11 55	„	„
	To be continued		

Continued

Date and Hour (Mean Local Time)				δ			Observer	Recorder
Sept.	3rd	23h	9m	4°	11′	22″	Tanakadate	Tanakadate
,,	4th	1	24	,,	9	56	,,	,,
,,	,,	5	19	,,	9	0	,,	,,
,,	,,	6	29	,,	6	31	,,	,,
,,	,,	7	56	,,	6	58	,,	Sano
,,	,,	9	1	,,	10	17	Sano	,,
,,	,,	11	18	,,	15	14	,,	,,
,,	,,	12	39	,,	16	14	,,	,,
,,	,,	14	6	,,	11	43	,,	,,
Mean				4°	11′	28″		

$\delta = 4°$ 11′.47
Reduction to 1895.0 = 0.33
,, ,, sea level = 0.00
$\delta = 4$ 11′.8

DIP. (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Eime.)				Needle No.	θ		Observer	Recorder
Sept.	3rd	14h	59m	2	46°	46′.0	Sano	Tanakadate
,,	,,	22	16	2	,,	42.9	Tanakadate	,,
,,	4th	10	38	2	,,	43.4	Sano	Sano
Mean					46°	44′.1		

$\theta = 46°$ 44′.1
Reduction to 1895.0 = 2.68
,, ,, sea level = 0.00
$\theta = 46°$ 46′.8

HORIZONTAL INTENSITY (H)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 3rd 13h 53m	0.31336	404.52	30.1C	s 5.9203	30.5C	5°35′53″.8	12°40′17″.5	29.7C	Sano Tanakadate	Tanakadate Sano
,, ,, 20 34	0.31317	405.75	24.8	5.9123	25.1	5 37 10.0	12 43 11.2	24.6	Sano Tanakadate	Tanakadate Sano
,, 4th 7 32	0.31306	405.84	25.2	5.9119	25.4	5 37 15.0	12 43 17.5	25.1	Sano Tanakadate	Tanakadate Sano
Mean	0.31320									

$H =$ 0.31320
Reduction to 1895.0 = −3432
,, ,, sea level = 000
$H =$ 0.31286

279. UWAZIMA.

High Common School (宇和嶋高等小學校)

DECLINATION (δ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time)				δ			Observer	Recorder
Sept.	6th	23h	6m	4°	14′	16″	Tanakadate	Sano
,,	7	5	55	,,	12	54	Sano	,,
,,	,,	6	24	,,	12	29	,,	,,
,,	,,	7	22	,,	12	15	,,	,,
,,	,,	8	35	,,	12	55	Tanakadate	,,
,,	,,	9	31	,,	16	35	,,	,,
,,	,,	10	53	,,	19	31	,,	Tanakadate
,,	,,	11	51	,,	19	54	,,	,,
,,	,,	13	2	,,	19	9	,,	,,
				To be continued				

Continued

Date and Hour (Mean Local Time)				δ			Observer	Recorder
Sept.	7th	15h	14m	4	15′	34″	Tanakadate	Tanakadate
,,	,,	16	35	,,	14	31	,,	,,
,,	,,	17	40	,,	14	39	,,	,,
,,	,,	19	49	,,	15	30	,,	,,
,,	,,	20	14	,,	15	30	,,	,,
,,	,,	22	53	,,	14	55	,,	,,
,,	8th	1	0	,,	14	28	,,	,,
,,	,,	3	14	,,	14	5	,,	,,
,,	,,	4	40	,,	13	52	,,	,,
,,	,,	6	46	,,	11	14	,,	,,
,,	,,	8	6	,,	10	28	,,	,,
,,	,,	8	38	,,	10	50	,,	,,
Mean				4	15′	13″		

δ = 4 15′.22
Reduction to 1895.0 = 0.34
,, ,, sea level = 0.00
δ = 4 15′.6

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	7th	10h	18m	2	47°	5′.1	Tanakadate	Tanakadate
,,	,,	14	10	2	,,	4.0	,,	,,
,,	,,	23	55	2	,,	3.4	,,	,,
Mean					47°	4′.2		

θ = 47° 4′.2
Reduction to 1895.0 = 3.37
,, ,, sea level = 0.00
θ = 47° 7′.6

HORIZONTAL INTENSITY (*H*)

(**Value deduced from Vibration only by assuming Value of M.*)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	7th	8h	8m	*0.31220	405.78	25.1C	5.9207s	25.1C	(5°38′27″.5	12°45′29″.4	25.9C)	Sano / Tanakadate	Tanakadate / Sano
,,	,,	12	38	0.31260	404.66	29.1	5.9241	28.4	5 36 32.5	12 41 42.5	29.9	Sano / Tanakadate	Tanakadate / Sano
,,	8th	7	14	0.31243	405.35	26.0	5.9221	26.2	5 37 40.0	12 44 27.5	25.8	Tanakadate	Tanakadate
Mean				0.31241									

H = 0.31241
Reduction to 1895.0 = −3606
,, ,, sea level = 060
H = 0.31205

Uwazima Syuttyō (宇 和 島 出 張)

Observations of the Seto Sea Party, 1896.

Mikotama Zinsya (和 靈 神 社)

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	8th	11h	8m	*0.31237	405.28	26.7C	5.9229s	26.7C	—	—	—	Tanakadate	Tanakadate

280. WAKAMIYA.

Kitamura, Wakamiya (喜多村大字若宮)

DECLINATION (δ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	9th	8h	17m	4°	15′	16″	Tanakadate	Sano
,,	,,	8	54	,,	16	32	,,	,,
,,	,,	10	19	,,	20	7	,,	,,
,,	,,	11	42	,,	23	1	,,	,,
,,	,,	13	7	,,	23	25	,,	,,
,,	,,	13	38	,,	23	9	,,	,,
,,	,,	15	17	,,	21	2	Sano	Tanakadate
,,	,,	16	27	,,	19	53	Tanakadate	Sano
,,	,,	17	54	,,	20	18	,,	,,
,,	,,	19	50	,,	20	23	,,	,,
,,	,,	22	48	,,	20	46	,,	,,
,,	10th	3	11	,,	19	52	Sano	,,
,,	,,	4	15	,,	19	25	,,	,,
,,	,,	6	21	,,	18	2	,,	,,
,,	,,	6	58	,,	16	36	Tanakadate	,,
,,	,,	8	7	,,	14	43	,,	,,
,,	,,	8	50	,,	11	47	,,	,,
Mean				4	20′	2″		

$\delta = 4°\ 20'.03$
Reduction to 1895.0 = 0.14
,, ,, sea level = 0.00
$\delta = 4°\ 20'.2$

DIP (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	9th	9h	45m	2	47°	25′.5	Tanakadate	Sano
,,	,,	14	28	2	,,	24.4	,,	,,
,,	,,	21	50	2	,,	20.1	Sano	,,
Mean					47	23′.3		

$\theta = 47°\ 23'.3$
Reduction to 1895.0 = 3.71
,, ,, sea level = 0.00
$\theta = 47°\ 27'.0$

HORIZONTAL INTENSITY (*H*)
(* *Value deduced from Vibration only by assuming Value of M.*)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_p	Observer	Recorder
Sept.	9th	12h	41m	0.31180	403.29	32°.7C	5ˢ.9435	32°.8C	5°36′28″.8	12°41′23″.8	32°.6C	Sano / Tanakadate	Tanakadate / Sano
,,	,,	19	20	0.31165	405.37	26.4	5.9296	26.6	5 38 17.5	12 45 33.1	26.2	Sano / Tanakadate	Tanakadate / Sano
,,	10th	7	40	0.31185	405.49	25.9	5.9256	25.6	5 38 10.6	12 45 28.1	26.3	Sano / Tanakadate	Tanakadate / Sano
,,	,,	9	50	*0.31183	404.63	28.8	5.9329	28.8	—	—	—	Sano	Tanakadate
Mean				0.31178									

$H = 0.31178$
Reduction to 1895.0 = −3644
,, ,, sea level = 13
$H = 0.31142$

281 YAHATAHAMA

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 12th 9h 39m	2	47° 31′.8	Tanakadate	Sano
,, ,, 10 39	2	,, 30.2	,,	,,
Mean		47 31′.0		

θ = 47° 31′.0
Reduction to 1895.0 = 3.91
,, ,, sea level = 0.00
θ = 47° 34′.9

HORIZONTAL INTENSITY (H)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 12th 9h 58m	*0.31166	405.75	25.2C	5.9261 s	25.2C	—	—	—	Sano	Tanakadate
,, ,, 10 14	*0.31140	405.75	25.2	5.9286	25.2	—	—	—	,,	,,
Mean	0.31153									

H = 0.31153
Reduction to 1895.0 = −3735
,, ,, sea level = 000
H = 0.31116

282 SAGANOSEKI

Garandō (伽 藍 堂)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time)	δ	Observer	Recorder
Sept. 12th 23h 32m	4° 13′ 38″	Tanakadate	Tanakadate
,, 13th 1 43	,, 13 30	,,	,,
,, ,, 4 10	,, 12 41	,,	,,
,, ,, 6 10	,, 11 36	,,	,,
,, ,, 6 46	,, 11 25	,,	,,
,, ,, 7 53	,, 10 5	,,	Sano
,, ,, 10 43	,, 14 45	Sano	,,
,, ,, 10 59	,, 16 7	,,	,,
,, ,, 11 24	,, 17 4	,,	,,
,, ,, 11 56	,, 17 50	,,	,,
,, ,, 12 28	,, 18 42	,,	,,
,, ,, 13 39	,, 18 44	Tanakadate	,,
,, ,, 15 19	,, 18 33	,,	,,
,, ,, 15 28	,, 17 16	,,	,,
,, ,, 16 29	,, 14 11	,,	,,
,, ,, 17 14	,, 13 10	,,	,,
,, ,, 19 5	,, 13 17	Sano	,,
,, ,, 20 43	,, 13 10	Tanakadate	,,
,, ,, 23 18	,, 13 13	,,	,,
Mean	4 13′ 54″		

δ = 4 13′.90
Reduction to 1895.0 = 0.61
,, ,, sea level = 0.00
δ = 4° 14′.5

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 13th 9h 2m	2	47 4′.4	Sano	Sano
,, ,, 14 26	2	,, 8.9	Tanakadate	,,
,, ,, 17 51	2	,, 2.7	,,	,,
,, ,, 22 21	2	,, 7.3	,,	,,
Mean		47 5′.8		

θ = 47 5′.8
Reduction to 1895.0 = 4.08
,, ,, sea level = 0.00
θ = 47° 9′.9

HORIZONTAL INTENSITY (*H*)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 13th 7h 30m	0.31435	406.64	22°.2C	s 5.8931	21.7C	5°36′28″.1	12°41′35″.0	22°.8C	Sano / Tanakadate	Tanakadate / Sano
„ „ 13 16	0.31422	404.15	30.6	5.9151	31.1	5 34 33.8	12 37 4.4	30.0	Sano / Tanakadate	Tanakadate / Sano
„ „ 20 14	0.31413	406.11	23.7	5.9008	24.0	5 36 27.5	12 41 33.8	23.4	Sano / Tanakadate	Tanakadate / Sano
Mean	0.31423									

$H=$ 0.31423

Reduction to 1895.0 = −3913

„ „ sea level = 000

$H=$ 0.31384

Saganoseki Syuttyō (佐賀關出張)

Observations of the Seto Sea Party, 1896.

(1) Sea Shore (海岸)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 14th 13h 14m	2	47′ 5″.5	Tanakadate	Tanakadate

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 14th 13h 13m	*0.31455	405.50	26°.0C	s 5.9008	26°.0C	—	—	—	Tanakadate	Tanakadate

(2) Zyūninzuka (十人塚)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 14th 18h 6m	2	48′ 19″.9	Tanakadate	Tanakadate

283 SAIKI

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 15th 17h 16m	4 8′ 27″	Tanakadate	Sano
„ „ 18 8	„ 8 49	„	„
„ „ 19 21	„ 8 30	„	„
„ „ 21 45	„ 7 42	„	„
„ „ 23 23	„ 8 16	„	„
„ 16th 2 10	„ 7 24	Sano	„
„ „ 5 29	„ 8 5	„	„
„ „ 5 58	„ 7 24	„	„
„ „ 6 53	„ 5 57	„	„
„ „ 7 34	„ 5 12	Tanakadate	„
„ „ 8 46	„ 5 57	„	„
„ „ 9 55	„ 8 14	„	Tanakadate
„ „ 10 58	„ 11 52	„	„
„ „ 11 46	„ 14 2	„	„
„ „ 12 11	„ 14 1	„	Sano
„ „ 13 6	„ 12 46	„	„
„ „ 14 22	„ 11 4	„	„
„ „ 15 43	„ 9 2	Sano	„
„ „ 17 6	„ 8 38	„	„
„ „ 17 40	„ 8 57	„	„
Mean	4 8′ 31″		

δ=4 8′.52

Reduction to 1895.0 = 0.81

„ „ sea level = 0.00

δ=4° 9′.4

DIP (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 15th 21h 55m	2	46° 50'.3	Sano	Tanakadate
,, 16th 10 1	2	,, 56.4	Tanakadate	,,
,, ,, 14 40	2	,, 56.3	,,	Sano
Mean		46° 54'.3		

$\theta = 46° \quad 54'.3$
Reduction to 1895.0 = 3.93
,, ,, sea level = 0.00
$\theta = 46° \quad 58'.2$

HORIZONTAL INTENSITY. (*H*)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 15th 18h 53m	0.31342	406.12	22.7C	s 5.9069	23.1C	5°37′11″.9	12 43′10″.0	22.4C	Sano / Tanakadate	Tanakadate / Sano
,, 16th 8 24	0.31331	406.24	23.7	5.9052	23.0	5 37 2.5	12 42 37.5	24.4	Sano / Tanakadate	Tanakadate / Sano
,, ,, 12 44	0.31339	403.57	31.3	5.9268	31.9	5 35 2.5	12 38 15.7	30.7	Sano / Tanakadate	Tanakadate / Sano
Mean	0.31337									

H = 0.31337
Reduction to 1895.0 = −3982
,, ,, sea level = 000
H = 0.31297

Saiki Syuttyō (佐 伯 出 張)

Observations of the Seto Sea Party, 1896.

(1)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 16th 18h 16m	2	46 55'.0	Tanakadate	Tanakadate

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 16th 18h 53m	*0.31233	405.46	25.4C	s 5.9216	25.4C	—	—	—	Tanakadate	Tanakadate
,, ,, 19 14	*0.31256	405.96	23.8	5.9156	23.8	—	—	—	,,	,,
Mean	0.31245									

(2) Ubutama Zinsya (鶴ヶ岡字坂浦產靈神社鳥居前)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 17th 9h 4m	2	46° 52'.4	Tanakadate	Sano

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Tecorder
Sept. 17th 9h 55m	*0.31310	405.96	23.6C	s 5.9107	23.6C	—	—	—	Sano	Tanakadate

284. OITA.

DECLINATION (δ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	17th	20h	44m	4	15′	47″	Tanakadate	Tanakadate
,,	,,	22	6	,,	15	47	,,	,,
,,	18th	0	36	,,	15	42	,,	,,
,,	,,	2	24	,,	15	15	,,	,,
,,	,,	4	31	,,	14	58	,,	,,
,,	,,	5	13	,,	15	52	,,	,,
,,	,,	6	4	,,	15	42	,,	,,
,,	,,	7	17	,,	12	16	,,	Sano
,,	,,	8	15	,,	10	18	,,	,,
,,	,,	8	49	,,	11	20	,,	,,
,,	,,	10	23	,,	16	8	Sano	,,
,,	,,	12	14	,,	20	53	,,	,,
,,	,,	13	24	,,	22	0	Tanakadate	,,
,,	,,	14	44	,,	18	55	,,	,,
,,	,,	15	49	,,	15	51	Sano	,,
,,	,,	16	45	,,	16	45	,,	,,
,,	,,	17	22	,,	15	35	,,	,,
,,	,,	17	48	,,	18	15	,,	,,
,,	,,	18	6	,,	20	0	,,	,,
,,	,,	18	37	,,	13	56	,,	,,
,,	,,	20	13	,,	16	42	Tanakadate	Tanakadate
Mean				4	15′	58″		

δ = 4 15.97
Reduction to 1895.0 = 0.77
,, ,, sea level = 0.00
δ = 4 16.7

DIP (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	18th	0h	40m	2	47	14.5	Tanakadate	Tanakadate
,,	,,	10	27	2	,,	15.1	Sano	Sano
,,	,,	14	29	2	,,	19.9	Tanakadate	,,
Mean					47	16.5		

θ = 47 16.5
Reduction to 1895.0 = 4.47
,, ,, sea level = 0.00
θ = 47° 21.0

HORIZONTAL INTENSITY (*H*)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 18th 8h 52m	0.31210	406.35	20.7C	s 5.9149	19.6C	5 38′ 45.0	12 47′ 3.8	21.9C	Sano / Tanakadate	Tanakadate / Sano
,, ,, 12 58	0.31146	403.64	30.5	5.9458	31.7	5 37 16.2	12 43 20.6	29.4	Sano / Tanakadate	Tanakadate / Sano
,, ,, 19 32	0.31004	406.13	22.2	5.9394	22.5	5 40 55.0	12 51 38.8	22.0	Sano / Tanakadate	Tanakadate / Sano
Mean	0.31120									

H = 0.31120
Reduction to 1895.0 = −4082
,, ,, sea level = 000
H = 0.31079

Oita Syuttyō (大 分 出 張)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	18th	—	—	2	47°	20.7	Tanakadate	Sano

285. MATUYAMA.

Dōgomura, Motida (道後村字持田)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	19^{th}	17^h	58^m	4°	27′	56″	Tanakadate	Sano
,,	,,	19	26	,,	27	59	,,	,,
,,	,,	20	57	,,	27	49	,,	,,
,,	,,	22	18	,,	28	6	Sano	,,
,,	,,	22	57	,,	27	22	,,	,,
,,	20^{th}	1	16	,,	27	22	,,	,,
,,	,,	1	50	,,	27	26	,,	,,
,,	,,	4	36	,,	26	26	,,	,,
,,	,,	5	5	,,	26	3	,,	,,
,,	,,	6	8	,,	25	34	,,	,,
,,	,,	6	41	,,	24	50	,,	,,
,,	,,	7	34	,,	23	15	Tanakadate	,,
,,	,,	7	48	,,	22	59	,,	,,
,,	,,	8	56	,,	22	57	,,	,,
,,	,,	10	17	,,	26	24	,,	Tanakadate
,,	,,	10	37	,,	26	29	,,	,,
,,	,,	11	51	,,	29	58	,,	,,
,,	,,	12	21	,,	31	29	,,	Sano
,,	,,	13	15	,,	32	4	,,	,,
,,	,,	14	47	,,	31	41	,,	,,
,,	,,	16	1	,,	29	21	,,	,,
,,	,,	17	45	,,	28	27	,,	Tanakadate
,,	,,	19	10	,,	28	47	,,	,,
Mean				4°	27′	43″		

$\delta = 4°\ 27'.72$

Reduction to 1895.0 = 0.22

,, ,, sea level = 0.00

$\delta = 4°\ 27'.9$

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	20^{th}	10^h	36^m	2	47	48.2	Tanakadate	Tanakadate
,,	,,	14	48	2	,,	44.9	Sano	,,
,,	,,	18	4	2	,,	47.1	Tarakadate	Sano
Mean					47°	46'.7		

$\theta = 47°\ 46'.7$

Reduction to 1895.0 = 3.78

,, ,, sea level = 0.00

$\theta = 47\ \ 50'.5$

HORIZONTAL INTENSITY (*H*)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time fo 1-Vib^n.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 19^{th} 20^h 34^m	0.3.033	406.97	19.7C	^{s}5.9301	20.0C	5°41′23″.1	12°52′50″.0	19.4C	Sano Tanakadate	Tanakadate Sano
,, 20^{th} 8 36	0.31051	405.99	24.1	5.9345	23.8	5 40 3.8	12 49 43.8	24.4	Sano Tanakadate	Tanakadate Sano
,, ,, 12 54	0.31010	403.66	31.9	5.9571	32.2	5 38 18.8	12 45 23.1	31.7	Sano Tanakadate	Tanakadate Sano
Mean	0.31031									

$H = 0.31031$

Reduction to 1895.0 = −3578

,, ,, sea level = 000

$H = 0.30995$

Matuyama Syuttyō (松 山 出 張)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 21st 10^h 4^m	*0.31011	407.07	20°.2C	$\overset{s}{5.9307}$	20°.2C	—	—	—	Tanakadate	Tanakadate

286. KUZU.

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 21st 23^h 15^m	4° 22′ 59″	Tanakadate	Tanakadate
,, 22nd 1 29	,, 21 28	,,	,,
,, ,, 2 21	,, 21 16	,,	,,
,, ,, 6 1	,, 21 1	,,	,,
,, ,, 7 30	,, 19 38	Sano	Sano
,, ,, 8 40	,, 20 39	,,	,,
,, ,, 10 4	,, 24 37	,,	,,
,, ,, 11 49	,, 27 40	,,	,,
,, ,, 12 42	,, 27 38	,,	,,
,, ,, 14 47	,, 24 21	,,	,,
,, ,, 15 55	,, 23 16	,,	,,
,, ,, 17 45	,, 23 36	,,	,,
,, ,, 19 20	,, 23 2	,,	,,
,, ,, 21 18	,, 22 34	,,	,,
,, ,, 23 58	,, 21 53	,,	,,
,, 23rd 0 22	,, 21 47	,,	,,
,, ,, 3 0	,, 20 26	,,	,,
,, ,, 5 16	,, 20 8	,,	,,
,, ,, 6 26	,, 20 25	,,	,,
,, ,, 7 8	,, 20 22	,,	,,
,, ,, 7 48	,, 19 22	Tanakadate	,,
,, ,, 9 1	,, 22 36	,,	Tanakadate
,, ,, 13 35	,, 24 21	,,	Sano
Mean	4° 22′ 43″		

$\delta = 4°\ 22'.72$

Reduction to 1865.0 = -0.05

,, ,, sea level = -0.02

$\delta = 4°\ 22'.7$

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 23rd 10^h 23^m	2	47° 29'.0	Tanakadate	Tanakadate
,, ,, 11 40	2	,, 27.6	,,	,,
Mean		47° 28'.3		

$\theta = 47°\ 28'.3$

Reduction to 1895.0 = 3.28

,, ,, sea level = -0.06

$\theta = 47°\ 31'.5$

HORIZONTAL INTENSITY (H)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 23rd 8^h 32^m	0.31059	406.29	21°.4C	$\overset{s}{5.9311}$	21°.0C	5°40′ 6″.2	12°49′32″.5	21°.8C	{Sano, Tanakadate}	{Tanakadate, Sano}
,, ,, 13 16	0.31136	405.27	24.2	5.9320	24.4	5 38 44.4	12 46 50.0	24.0	{Sano, Tanakadate}	{Tanakadate, Sano}
Mean	0.31098									

$H = 0.31098$

Reduction to 1895.0 = -3508

,, ,, sea level = 409

$H = 0.31067$

287. KUMA.

Race Course (久萬町村舊馬場)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 24th 8h 42m	4° 25′ 48″	Tanakadate	Sano
,, ,, 9 43	,, 28 21	,,	,,
,, ,, 10 42	,, 30 26	,,	,,
,, ,, 11 41	,, 30 31	,,	,,
,, ,, 13 28	,, 30 16	,,	,,
,, ,, 14 59	,, 28 42	,,	,,
,, ,, 16 12	,, 27 39	,,	,,
,, ,, 16 31	,, 27 32	,,	,,
,, ,, 17 11	,, 27 34	,,	,,
Mean	4° 26′ 52″		

δ = 4° 26′.87

Reduction to 1895.0 = −0.10

,, ,, sea level = −0.03

δ = 4° 26′.7

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 24th 10h 46m	2	47° 35′.8	Tanakadate	Sano
,, ,, 15 17	2	,, 29.2	Sano	Tanakadate
Mean		47° 32′.5		

θ = 47° 32′.5

Reduction to 1895.0 = 3.63

,, ,, sea level = −0.10

θ = 47° 36′.0

HORIZONTAL INTENSITY (H)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 24th 9h 21m	0.31041	406.05	22.2C	5.9352 s	22.0C	5°40′ 8″.1	12°49′36″.9	22.3C	Sano / Tanakadate	Tanakadate / Sano
,, ,, 13 0	0.31032	405.18	23.9	5.9421	25.6	5 39 36.2	12 48 39.4	22.3	Sano / Tanakadate	Tanakadate / Sano
Mean	0.31037									

H = 0.31037

Reduction to 1895.0 = −3583

,, ,, sea level = 663

H = 0.31008

288. IMABARU.

Hukiage Zinsya, Old Castle (今治舊城內吹揚神社)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 25th 16h 29m	4 33′ 12″	Tanakadate	Sano
,, ,, 18 20	,, 34 13	,,	,,
,, ,, 19 57	,, 34 27	,,	,,
,, ,, 21 25	,, 33 54	,,	,,
,, ,, 23 42	,, 33 1	,,	Tanakadate
,, 26th 3 37	,, 32 7	,,	,,
,, ,, 6 18	,, 32 36	,,	,,
,, ,, 7 6	,, 33 13	,,	Sano
,, ,, 8 14	,, 32 40	,,	,,
,, ,, 9 40	,, 32 37	Sano	,,
,, ,, 11 0	,, 32 52	,,	,,
,, ,, 12 22	,, 34 1	,,	Tanakadate
	To be continued		

Continued

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 26th 13h 21m	4° 34′ 48″	Tanakadate	Sano
,, ,, 14 1	,, 34 59	,,	Tanakadate
,, ,, 15 7	,, 34 57	,,	,,
,, ,, 16 11	,, 33 51	,,	,,
,, ,, 16 33	,, 33 43	,,	,,
,, ,, 18 10	,, 32 54	,,	,,
,, ,, 18 53	,, 33 0	,,	,,
,, ,, 22 0	,, 33 24	,,	,,
,, 27th 2 5	,, 36 52	,,	,,
,, ,, 3 16	,, 36 6	,,	,,
,, ,, 5 8	,, 34 2	,,	,,
,, ,, 7 18	,, 32 37	,,	,,
Mean	4° 33′ 13″		

$\delta = 4° \quad 33.'22$

Reduction to 1895.0 = −0.40

,, ,, sea level = 0.00

$\delta = 4° \quad 32.'8$

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Sept. 26th 10h 24m	2	47 59.'2	Sano	Sano
,, ,, 15 10	2	48 0.8	Tanakadate	Tanakadate
,, ,, 20 23	2	,, 1.5	,,	,,
Mean		48 0.'5		

$\theta = 48° \quad 0.'5$

Reduction to 1895.0 = 3.82

,, ,, sea level = 0.00

$\theta = 48° \quad 4.'3$

HORIZONTAL INTENSITY (H)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 25th 20h 57m	0.30977	406.28	21.3C	5.9405 s	21.°3C	5 41′21.″2	12°52′42.″5	21.°3C	Sano Tanakadate	Tanakadate Sano
,, 26th 7 46	0.30955	406.66	19.2	5.9389	19.1	5 41 48.8	12 53 40.0	19.3	Sano Tanakadata	Tanakadate Sano
,, ,, 13 5	0.30948	406.55	19.6	5.9412	19.9	5 41 46.2	12 53 23.1	19.3	Sano Tanakadate	Tanakadate Sano
Mean	0.30960									

H = 0.30960

Reduction to 1895.0 = −3559

,, ,, sea level = 000

H = 0.30924

289. KAWANOE.

Sea Side Embankment (海 濱 ノ 堤 防)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Sept. 28th 12h 56m	4 33′ 9″	Tanakadate	Sano
,, ,, 14 2	,, 33 19	,,	,,
,, ,, 15 1	,, 33 3	,,	,,
,, ,, 16 21	,, 31 37	,,	,,
,, ,, 17 48	,, 30 49	,,	,,
,, ,, 18 41	,, 31 1	,,	,,
,, ,, 20 3	,, 31 1	,,	,,
,, 29th 0 15	,, 30 32	Sano	,,
,, ,, 3 28	,, 30 12	,,	,,
	To be continued		

Continued

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	29th	5h	40m	4°	30′	19″	Sano	Sano
,,	,,	5	57	,,	30	20	,,	,,
,,	,,	7	0	,,	29	34	,,	,,
,,	,,	7	47	,,	28	22	Tanakadate	,,
,,	,,	9	9	,,	27	24	,,	Tanakadate
,,	,,	9	40	,,	27	49	,,	,,
,,	,,	11	35	,,	31	57	,,	,,
,,	,,	12	27	,,	32	59	Sano	Sano
,,	,,	13	9	,,	34	2	,,	,,
Mean				4°	30′	52″		

δ = 4° 30′.87
Reduction to 1895.0 = −0.59
,, ,, sea level = 0.00
δ = 4° 30′.3

DIP (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	28th	16h	14m	2	47°	51′.8	Tanakadate	Sano
,,	29th	2	4	2	,,	52.6	Sano	,,
,,	,,	10	43	2	,,	52.9	Tanakadate	Tanakadate
Mean					47°	52′.4		

θ = 47° 52′.4
Reduction to 1895.0 = 3.14
,, ,, sea level = 0.00
θ = 47° 55′.5

HORIZONTAL INTENSITY (*H*)
(* *Value deduced from Vibration only by assuming Value of M.*)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 28th 13h 38m	0.30919	405.86	21°.1C	5.9495 s	21°.7C	5°41′50″.0	12°54′ 1″.2	20°.6C	{ Sano / Tanakadate	{ Tanakadate / Sano
,, ,, 19 37	0.30910	407.18	16.8	5.9400	17.3	5 43 0.6	12 56 34.4	16.4	{ Sano / Tanakadate	{ Tanakadate / Sano
,, 29th 8 20	*0.30957	405.58	22.1	5.9468	22.1	—	—	—	Sano	Tanakadate
,, ,, 8 42	0.30942	405.49	23.7	5.9475	22.9	5 40 39.4	12 50 58.1	24.6	{ ,, / Tanakadate	{ ,, / Sano
Mean	0.30932									

H = 0.30932
Reduction to 1895.0 = −3316
,, ,, sea level = 000
H = 0.30899

Kawanoe Syuttyō (川ノ江出張)

Observations of the Seto Sea Party, 1896.

Syōhatiman (正八幡)

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept. 29th — —	*0.30979	404.80	24°.5C	5.9508 s	24°.5C	—	—	—	Tanakadate	Tanakadate

290. MARUGAME.

Middle School (丸龜常尋中學校)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Sept.	29th	23h	31m	4°	31′	30″	Tanakadate	Tanakadate
,,	30th	0	5	,,	31	21	,,	,,
,,	,,	2	14	,,	30	10	,,	,,
,,	,,	6	8	,,	30	50	,,	,,
,,	,,	7	10	,,	30	15	,,	Sano
,,	,,	7	52	,,	30	3	,,	,,
,,	,,	9	0	,,	29	8	,,	,,
,,	,,	10	50	,,	32	7	Sano	,,
,,	,,	12	16	,,	34	32	,,	Tanakadate
,,	,,	13	22	,,	35	17	Tanakadate	,,
,,	,,	14	0	,,	34	56	,,	,,
,,	,,	15	41	,,	33	42	,,	,,
,,	,,	17	5	,,	32	18	,,	,,
,,	,,	18	32	,,	32	18	,,	Tanakadate Sano
,,	,,	19	58	,,	32	14	,,	,,
,,	,,	22	32	,,	32	0	,,	Tanakadate
Mean				4°	31′	49″		

δ = 4° 31′.82

Reduction to 1895.0 = −0.80

,, ,, sea level = 0.00

δ = 4° 31′.0

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Sept.	30th	10h	38m	2	48°	5′.2	Sano	Sano
,,	,,	15	37	2	,,	8.0	Tanakadate	Tanakadate
,,	,,	21	33	2	,,	7.8	,,	,,
Mean					48°	7′.0		

θ = 48° 7′.0

Reduction to 1895.0 = 3.15

,, ,, sea level = 0.00

θ = 48° 10′.2

HORIZONTAL INTENSITY (H)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Sept.	30th	8h	37m	0.30895	404.80	23°.4C	5s.9577	22°.9C	5° 40′ 49″.4	12° 51′ 33″.8	24°.0C	Sano Tanakadate	Tanakadate Sano
,,	,,	12	57	0.30888	404.10	25.4	5.9653	25.6	5 40 16.2	12 50 1.9	25.2	Sano Tanakadate	Tanakadate Sano
,,	,,	19	28	0.30898	406.01	19.4	5.9497	19.6	5 41 58.8	12 54 6.2	19.1	Sano Tanakadate	Tanakadate Sano
Mean				0.30894									

H = 0.30894

Reduction to 1895.0 = −3232

,, ,, sea level = 000

H = 0.30862

291. TAKAMATU.

Old Castle (舊 城 内)

DECLINATION (δ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	1st	12h	34m	4°	40′	57″	Tanakadate	Sano
,,	,,	14	4	,,	40	51	,,	,,
,,	,,	16	20	,,	40	19	,,	Tanakadate
,,	,,	17	26	,,	40	6	,,	,,
,,	,,	18	59	,,	39	35	,,	Sano
,,	,,	20	19	,,	38	16	Sano	,,
,,	,,	23	25	,,	38	19	,,	,,
,,	2nd	1	52	,,	37	1	,,	,,
,,	,,	5	18	,,	36	43	,,	,,
,,	,,	6	12	,,	37	52	,,	,,
,,	,,	6	33	,,	38	3	,,	,,
,,	,,	9	59	,,	37	52	,,	,,
,,	,,	7	40	,,	37	19	Tanakadate	,,
,,	,,	8	52	,,	37	19	,,	Tanakadate
,,	,,	9	32	,,	37	28	,,	,,
,,	,,	11	3	,,	38	21	,,	,,
,,	,,	12	15	,,	40	0	,,	Sano
,,	,,	12	57	,,	40	19	,,	,,
Mean				4°	38′	23″		

δ = 4° 38′.38
Reduction to 1895.0 = −0.91
,, ,, sea level = 0.00
δ = 4° 37′.5

DIP (θ)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Oct.	1st	16h	0m	2	48°	9′.3	Tanakadate	Sano Tanakadate
,,	,,	22	26	2	,,	11.0	Sano	Sano
,,	2nd	10	51	2	,,	14.1	,,	,,
Mean					48°	11′.5		

θ = 48° 11′.6
Reduction to 1895.0 = 2.97
,, ,, sea level = 0.00
θ = 48° 14′.6

HORIZONTAL INTENSITY (H)

Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Oct.	1st	13h	39m	0.30835	403.07	27.3C	s 5.9781	27.4C	5°40′21″.9	12°50′55″.0	27.2C	Sano Tanakadate	Tanakadate Sano
,,	,,	19	43	0.30813	405.18	21.4	5.9643	21.6	5 42 16.2	12 54 53.8	21.2	Sano Tanakadate	Tanakadate Sano
,,	2nd	8	24	0.30794	404.94	23.2	5.9676	23.2	5 42 5.0	12 54 18.8	23.2	Sano Tanakadate	Tanakadate Sano
Mean				0.30814									

H = 0.30814
Reduction to 1895.0 = −3115
,, ,, sea level = 000
H = 0.30783

292. TONOSYÔ.

DECLINATION (δ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Oct.	3rd	9h	41m	4	37′	56″	Tanakadate	Sano
„	„	11	35	„	39	18	„	„
„	„	12	37	„	40	46	„	„
„	„	14	2	„	41	10	„	„
„	„	15	7	„	41	25	„	„
„	„	16	24	„	40	36	Sano	„
„	„	18	3	„	39	50	Tanakadate	„
„	„	19	30	„	39	37	„	„
„	„	20	28	„	39	36	„	Tanakadate
„	„	23	13	„	38	53	„	„
„	4th	0	41	„	39	31	„	„
„	„	3	48	„	40	0	„	„
„	„	6	49	„	39	56	„	Sano
„	„	7	47	„	37	56	„	„
„	„	9	4	„	38	1	„	„
„	„	9	54	„	38	46	„	„
„	„	12	43	„	43	33	„	„
„	„	15	0	„	41	32	„	„
„	„	16	15	„	40	3	„	„
Mean				4°	39′	41″		

$\delta = 4^\circ\ 39'.68$
Reduction to 1895.0 = $-1'.09$
„ „ sea level = 0.00
$\delta = 4^\circ\ 38'.6$

DIP (θ)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Oct.	3rd	11h	25m	2	48°	20′.9	Tanakadate	Sano
„	„	15	27	2	„	23.2	Sano	Tanakadate
„	„	22	1	2	„	18.9	Tanakadate	„
Mean					48	21′.0		

$\theta = 48^\circ\ 21'.0$
Reduction to 1895.0 = 2.98
„ „ sea level = 0.00
$\theta = 48^\circ\ 24'.0$

HORIZONTAL INTENSITY (H)
Observations of the Seto Sea Party, 1896.

Date and Hour (Mean Local Time)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Oct. 3rd 13h 32m	0.30667	405.09	22.4C	5.9789 s	22°.6C	5°43′36″.9	12°57′45″.6	22°.3C	Sano / Tanakadate	Tanakadate / Sano
„ „ 19 55	0.30678	404.87	22.1	5.9795	22.1	5 43 30.0	12 57 48.8	22.1	Sano / Tanakadate	Tanakadate / Sano
„ 4th 8 41	0.30677	405.57	21.4	5.9743	21.4	5 44 0.6	12 58 46.2	21.4	Sano / Tanakadate	Tanakadate / Sano
Mean	0.30674									

$H = 0.30674$
Reduction to 1895.0 = $-.3059$
„ „ sea level = $.000$
$H = 0.30643$

Tonosyō Syuttyō (土ノ庄出張)

Observations of the Seto Sea Party, 1896.

Saikōzi (西光寺)

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
Oct. 4th 15h 37m	*0.30667	405.43	21.2C	s 5.9761	21.2C	—	—	—	Sano	Tanakadate
,, ,, 15 59	*0.30676	405.55	20.9	5.9745	20.9	—	—	—	Tanakadate	Sano
Mean	0.30672									

293. ZAIKŌZI.

Zaikōzihara (富高村大字財光寺字小狭間財光寺原)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 7th 9h 12m	3° 56′ 34″	Imamura	Hattori
,, ,, 9 58	,, 57 17	,,	Imamura
,, ,, 11 19	,, 59 4	Sinzyō	Hattori
,, ,, 11 51	,, 59 38	,,	,,
,, ,, 13 9	4 2 19	,,	,,
,, ,, 13 51	,, 3 34	Imamura	Sinzyō
,, ,, 14 31	,, 3 14	Sinzyō	Hattori
,, ,, 15 23	,, 2 46	Imamura	Sinzyō
,, ,, 16 33	,, 1 23	Hattori	Imamura
,, ,, 17 21	,, 0 25	Imamura	,,
,, ,, 18 22	,, 0 22	,,	,,
,, ,, 19 39	,, 0 39	,,	,,
,, ,, 20 53	,, 0 26	,,	,,
,, ,, 22 25	,, 0 31	Sinzyō	Sinzyō
,, 8th 1 8	,, 0 19	,,	,,
,, ,, 3 58	3 59 42	,,	,,
,, ,, 5 23	,, 58 37	,,	,,
,, ,, 6 2	,, 58 3	,,	Imamura
,, ,, 7 4	,, 57 34	Imamura	,,
,, ,, 8 11	,, 57 34	,,	,,
Mean	4° 0′ 5″		

δ = 4° 0.′08

Reduction to 1895.0 = 1.11

,, ,, sea level = 0.00

δ = 4° 1.′2

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 7th 13h 34m	1	46° 13.′0	Imamura	Sinzyō
,, ,, 15 57	1	,, 10.4	Hattori	Imamura
,, ,, 22 3	1	,, 10.3	Sinzyō	Sinzyō
Mean		46° 11.′2		

θ = 46° 11.′2

Reduction to 1895.0 = 3.03

,, ,, sea level = 0.00

θ = 46° 14.′2

HORIZONTAL INTENSITY (*H*)
Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibⁿ.	Temp. t_V	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 7th 12h 39m	0.31579	421.09	37.2C	5.7625 s	37.1C	5°43′47″.5	13 2′32″.5	37.4C	Sinzyō Imamura	Imamura Sinzyō
,, ,, 14 59	0.31639	421.37	35.8	5.7568	36.3	5 43 54.4	13 3 16.9	35.4	,, Sinzyō	,, Imamura
,, 8th 18 38	0.31645	424.15	25.5	5.7349	25.3	5 46 20.0	13 9 18.8	25.8	Imamura Sinzyō	Sinzyō Imamura
Mean	0.31621									

$H=$ 0.31621
Reduction to 1895.0 = −35.0
,, ,, sea level = 00.0
$H=$ 0.31586

Zaikōzi Syuttyō (財光寺出張)

Observations of the South West Party, 1896.

Station, 1887 in Hitiya (日知屋舊觀測點)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 7th 14h 18m	1	46° 14′.4	Sinzyō	Sinzyō

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibⁿ.	Temp. t_V	Mean Deflections φ_1	φ_2	Temp. t_D	Observer	Recorder
July 7th 18h 4m	*0.31576	422.65	31.2C	5.7528 s	31.2C	—	—	—	Hattori	Sinzyō
,, ,, 18 16	*0.31582	422.65	31.3	5.7523	31.3	—	—	—	,,	,,
Mean	0.31579									

294. MIYAZAKI.

Play Ground of Normal School (宮崎尋常師範學校運動場)

DECLINATION (δ)
Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 9th 7h 34m	3° 55′ 26″	Imamura	Sinzyo
,, ,, 7 47	,, 55 36	Sinzyō	,,
,, ,, 9 18	,, 57 43	Imamura	,,
,, ,, 10 3	,, 58 34	Sinzyō	Hattori
,, ,, 11 12	I 0 12	Hattori	Sinzyō
,, ,, 12 12	,, 0 49	Imamura	Hattori
,, ,, 13 1	,, 0 16	Sinzyō	,,
,, ,, 14 6	3 59 41	,,	,,
,, ,, 15 24	,, 58 41	Hattori	Sinzyō
,, ,, 16 42	,, 58 8	Imamura	,,
,, ,, 17 54	,, 57 26	,,	Imamura
,, ,, 19 13	,, 56 17	Hattori	Hattori
,, ,, 20 9	,, 55 48	,,	,,
,, ,, 20 44	,, 56 18	,,	,,
,, ,, 21 45	,, 57 48	,,	,,
,, ,, 23 1	,, 57 23	,,	,,
,, ,, 23 38	,, 57 39	,,	,,
,, 10th 1 38	,, 57 26	,,	,,
,, ,, 3 21	,, 56 49	,,	,,
,, ,, 4 56	,, 56 29	,,	,,
,, ,, 6 14	,, 54 38	,,	,,
Mean	3° 57′ 36″		

δ = 3° 57′.60
Reduction to 1895.0 = 1.37
,, ,, sea level = 0.00
δ = 3° 59′.0

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	9th	9h	48m	1	45°	36.8	Sinzyō	Imamura
,,	,,	14	46	1	,,	36.3	Hattori	Sinzyō
,,	,,	18	5	1	,,	38.5	Imamura	,,
Mean					45	37.2		

$\theta = 45° \quad 37.2$
Reduction to 1895.0 = 2.74
,, ,, sea level = 0.00
$\theta = 45° \quad 39.9$

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	9th	8h	59m	0.31797	424.35	26.5C	5.7177s	25.6C	5 44′19.″4	13° 4′16.″9	27.4C	Sinzyō Imamura	Imamura Sinzyō
,,	,,	13	42	0.31814	423.26	28.0	5.7264	28.0	5 43 41.3	13 3 0.6	28.0	,, Sinzyō	,, Imamura
,,	,,	18	1	0.31707	424.17	24.4	5.7306	24.6	5 45 28.8	13 6 41.3	24.1	Hattori Sinzyō	Sinzyō Hattori
Mean				0.31773									

$H = 0.31773$
Reduction to 1895.0 = −3572
,, ,, sea level = 000
$H = 0.31737$

295. MIYAKONOZYŌ.

Prefecture (郡 役 所)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	10th	20h	3m	3	39′	36″	Imamura	Imamura
,,	,,	20	23	,,	39	20	,,	,,
,,	,,	22	24	,,	39	8	,,	,,
,,	11th	0	5	,,	40	6	,,	,,
,,	,,	4	24	,,	38	24	,,	,,
,,	,,	5	56	,,	37	26	,,	,,
,,	,,	7	5	,,	35	36	Sinzyō	Hattori
,,	,,	8	28	,,	34	38	Hattori	Sinzyō
,,	,,	9	35	,,	37	40	Sinzyō	Hattori
,,	,,	10	53	,,	40	26	Hattori	Imamura
,,	,,	11	47	,,	41	15	Imamura	Hattori
,,	,,	12	21	,,	42	29	Sinzyō	,,
,,	,,	13	56	,,	41	33	,,	,,
,,	,,	15	2	,,	40	16	,,	Sinzyō
,,	,,	16	1	,,	40	32	Hattori	,,
,,	,,	17	14	,	38	25	Sinzyō	,,
,,	,,	17	59	,,	38	16	,,	Hattori
,,	,,	19	27	,,	38	28	,,	,,
Mean				3°	39′	6″		

$\delta = 3° \quad 39.10$
Reduction to 1895.0 = 1.74
,, ,, sea level = −0.01
$\delta = 3° \quad 40.8$

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 11th 9h 11m	1	45° 20!8	Sinzyō	Hattori
,, ,, 12 8	1	,, 19.8	Imamura	,,
,, ,, 16 50	1	,, 21.4	Hattori	Sinzyō
Mean		45° 20!7		

θ= 45° 20!7
Reduction to 1895.0= 3.05
,, ,, sea level= −0.03
θ= 45° 23!7

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 11th 7h 44m	0.31863	425.01	23.6C	5.7163	23.6C	5 44′ 8″8	13° 3′16″3	23.7C	Sinzyō / Hattori	Hattori / Sinzyō
,, ,, 13 24	0.31918	422.92	33.1	5.7211	33.6	5 41 21.9	12 56 3.1	32.6	Imamura	,,
,, ,, 18 56	0.31803	423.24	25.9	5.7285	26.3	5 43 27.5	13 1 40.0	25.5	Hattori / Sinzyō	Sinzyō / Hattori
Mean	0.31861									

H= 0.31861
Reduction to 1895.0= −3739
,, ,, sea level= 168
H= 0.31825

296. NAKAMATI.

Play Ground of Common School (福嶋中町尋常小學校運動場)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 12th 22h 46m	3 38′ 40″	Imamura	Sinzyō
,, ,, 23 21	,, 38 14	,,	Imamura
,, 13th 1 9	,, 37 53	,,	,,
,, ,, 4 55	,, 36 47	,,	,,
,, ,, 6 26	,, 34 27	,,	,,
,, ,, 7 25	,, 34 51	Sinzyō	Hattori
,, ,, 8 31	,, 35 9	Hattori	Sinzyō
,, ,, 9 2	,, 36 15	Sinzyō	Hattori
,, ,, 9 19	,, 36 27	,,	,,
,, ,, 10 21	,, 37 41	,,	,,
,, ,, 11 59	,, 39 51	,,	,,
,, ,, 12 50	,, 41 44	,,	Imamura
,, ,, 14 11	,, 42 16	Imamura	Sinzyō
,, ,, 15 40	,, 41 0	Hattori	,,
,, ,, 16 18	,, 40 22	Sinzyō	Hattori
,, ,, 17 31	,, 38 23	Imamura	Sinzyō
,, ,, 18 26	,, 38 12	Sinzyō	,,
Mean	3 38′ 40″		

δ= 3 38!7
Reduction to 1895.0= 1.81
,, ,, sea level= 0.00
δ= 3 40!9

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	13th	9h	59m	1	45°	4'.7	Sinzyō	Hattori
„	„	15	9	1	44	59.9	Hattori	Sinzyō
„	„	17	47	1	45	5.2	Imamura	„
Mean					45°	3'.3		

$\theta = 45°$ 3'.3

Reduction to 1895.0 = 2.60

„ „ sea level = 0.00

$\theta = 45°$ 5'.9

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 13th 8h 21m	0.31892	423.57	27.4C	s 5.7154	26°.8C	5°42'43".8	13° 0'32".5	28°.1C	Sinzyō / Hattori	Hattori / Sinzyō
„ „ 14 53	0.31973	423.35	27.5	5.7115	27.5	5 42 1.3	12 59 5.6	27.5	Sinzyō / Imamura	Imamura / Sinzyō
„ „ 16 59	0.31981	423.58	25.4	5.7091	25.4	5 42 26.3	13 0 30.0	25.4	„ / Sinzyō	„ / Imamura
Mean	0.31949									

$H =$ 0.31949

Reduction to 1895.0 = −3672

„ „ sea level = 000

$H =$ 0.31912

297. KŌYAMA.

Common School (高山村小學校)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	14th	20h	17m	3°	38'	49"	Imamura	Hattori
„	„	20	41	„	38	40	Hattori	„
„	„	21	37	„	38	54	Sinzyō	Sinzyō
„	„	23	10	„	39	2	„	„
„	15th	0	37	„	38	50	„	„
„	„	1	45	„	38	29	„	„
„	„	3	13	„	38	17	„	„
„	„	4	57	„	37	29	„	„
„	„	6	29	„	38	25	„	Hattori
„	„	6	50	„	38	2	„	Sinzyō
„	„	9	20	„	38	40	Hattori	Hattori
„	„	10	31	„	40	0	„	„
„	„	14	33	„	45	25	Sinzyō	„
„	„	15	19	„	44	39	„	„
„	„	16	25	„	42	58	„	„
„	„	17	13	„	42	13	„	Sinzyō
„	„	18	17	„	41	14	„	„
Mean				3°	40'	31"		

$\delta = 3°$ 40'.52

Reduction to 1895.0 = 2.03

„ „ sea level = −0.01

$\delta = 3°$ 42'.5

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 15th 8h 36m	1	44 52'.5	Imamura	Imamura
,, ,, 14 58	1	,, 49.4	Hattori	Sinzyō
,, ,, 16 51	1	,, 49.7	Sinzyō	,,
Mean		44 50'.5		

θ = 44 50'.50
Reduction to 1895.0 = 2.77
,, ,, sea level = −0.03
θ = 44° 53'.2

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 15th 7h 57m	0.32059	423.22	26°.9C	s 5.7039	26°.7C	5°40'52''.5	12°56'23''.8	27°.2C	Sinzyō Hattori	Hattori Sinzyō
,, ,, 16 10	0.32120	420.94	33.6	5.7167	34.2	5 39 5.0	12 53 5.0	33.1	,, Sinzyō	,, Hattori
,, ,, 17 47	0.32040	422.81	29.7	5.7106	30.2	5 40 42.5	12 55 34.3	29.3	,, Hattori	,, Sinzyō
Mean	0.32073									

H = 0.32073
Reduction to 1895.0 = −3796
,, ,, sea level = 120
H = 0.32036

298. KAGOSIMA.

Play Ground of High Common School (尋常中學校高等小學校運動場)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 16th 18h 24m	3 35' 12''	Imamura	Sinzyō
,, ,, 18 42	,, 34 22	Sinzyō	,,
,, ,, 20 9	,, 34 50	,,	,,
,, ,, 20 30	,, 34 57	,,	,,
,, ,, 22 9	,, 35 32	,,	,,
,, ,, 23 24	,, 35 17	,,	,,
,, 17th 0 24	,, 35 26	,,	,,
,, ,, 3 49	,, 34 12	,,	,,
,, ,, 4 30	,, 34 8	,,	,,
,, ,, 5 27	,, 34 52	,,	,,
,, ,, 7 20	,, 32 12	Hattori	Hattori
,, ,, 7 48	,, 32 32	Imamura	,,
,, ,, 9 41	,, 33 16	,,	,,
,, ,, 11 5	,, 34 33	Hattori	,,
,, ,, 11 41	,, 35 22	Sinzyō	,,
,, ,, 13 19	,, 36 22	Hattori	Sinzyō
,, ,, 14 33	,, 37 18	Sinzyō	,,
,, ,, 15 7	,, 37 6	,,	Imamura
,, ,, 15 46	,, 36 41	,,	Sinzyō
,, ,, 16 41	,, 35 32	Imamura	,,
,, ,, 17 29	,, 35 28	,,	,,
Mean	3° 34' 47''		

δ = 3° 34'.78
Reduction to 1895.0 = 2.11
,, ,, sea level = 0.00
δ = 3° 36'.9

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 17th 6h 17m	1	45° 27.4	Sinzyō	Sinzyō
,, ,, 12 18	1	,, 23.1	Hattori	Imamura
,, ,, 15 33	1	,, 24.0	Imamura	Sinzyō
Mean		45° 24.8		

θ = 45° 24.8
Reduction to 1895.0 = 3.39
,, ,, sea level = 0.00
θ = 45° 28.2

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections. φ_1	Mean Deflections. φ_2	Temp. t_D	Observer	Recorder
July 17th 9h 21m	0.31859	420.69	32.9C	s 5.7371	31.9C	5 40′ 33.1	12 55′ 38.1	34.0C	Hattori / Imamura	Imamura / Hattori
,, ,, 14 11	0.31914	422.01	33.0	5.7261	33.0	5 41 30.6	12 57 58.8	33.0	Sinzyō / Hattori	,, / Sinzyō
,, ,, 16 14	0.31887	422.34	30.2	5.7255	30.4	5 42 6.9	12 59 19.4	30.1	Imamura / Sinzyō	,, / Imamura
Mean	0.31887									

H = 0.31887
Reduction to 1895.0 = −3963
,, ,, sea level = 000
H = 0.31847

299. ITIKI.

Sea Shore in murayakuba (村役塲裏海濱)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 18th 15h 21m	3 57′ 9″	Imamura	Imamura
,, ,, 15 55	,, 56 48	,,	Sinzyō
,, ,, 16 59	,, 57 2	Sinzyō	,,
,, ,, 17 55	,, 56 5	Imamura	Hattori
,, ,, 18 50	,, 56 17	Sinzyō	Imamura
,, ,, 19 36	,, 55 58	Hattori	Hattori
,, ,, 21 23	,, 55 52	Sinzyō	,,
,, ,, 21 45	,, 55 53	,,	Sinzyō
,, ,, 23 49	,, 55 13	,,	,,
,, 19th 1 27	,, 55 4	,,	,,
,, ,, 3 5	,, 54 28	Hattori	Hattori
,, ,, 5 9	,, 55 5	Sinzyō	Sinzyō
,, ,, 5 35	,, 54 59	,,	,,
,, ,, 6 18	,, 53 48	Hattori	Hattori
,, ,, 8 12	,, 54 22	Imamura	Imamura
,, ,, 9 21	,, 54 8	,,	,,
,, ,, 10 18	,, 53 22	,,	,,
,, ,, 11 20	,, 53 48	Hattori	Hattori
,, ,, 12 24	,, 55 45	Sinzyō	,,
,, ,, 12 53	,, 56 38	Imamura	Sinzyō
Mean	3° 55′ 20″		

δ = 3° 55.33
Reduction to 1895.0 = 2.14
,, ,, sea level = 0.00
δ = 3° 57.5

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	18th	17h	39m	1	45°	4.6	Sinzyō	Imamura
,,	19th	7	54	1	,,	3.9	Hattori	,,
,,	,,	12	2	1	,,	7.2	Imamura	Sinzyō
Mean					45°	5.2		

$\theta = 45°\ \ 5.2$

Reduction to 1895.0 = 3.88

,, ,, sea level = 0.00

$\theta = 45°\ \ 9.1$

HORIZONTAL INTENSITY (*H*)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	18th	18h	23m	0.32366	421.84	32.1 C	s 5.6889	32.8 C	5 36′45.″0	12 46′50.″0	31.4 C	Imamura	Sinzyō
,,	19th	6	8	0.32355	424.14	25.5	5.6716	25.3	5 38 33.8	12 51 6.3	25.7	Sinzyō Hattori	Hattori Sinzyō
,,	,,	11	22	0.32360	421.68	32.7	5.6889	32.9	5 36 26.2	12 46 5.0	32.6	,, Imamura	Imamura Hattori
Mean				0.32360									

H = 0.32360

Reduction to 1895.0 = −4071

,, ,, sea level = 000

H = 0.32319

300. MAKURAZAKI.

Common School (枕崎小學校運動塲)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	20th	18h	17m	3	41′	57″	Imamura	Hattori
,,	,,	18	52	,,	41	45	Sinzyō	Sinzyō
,,	,,	20	28	,,	43	54	Imamura	Imamura
,,	,,	22	2	,,	43	38	Hattori	Hattori
,,	,,	23	6	,,	43	32	,,	Imamura
,,	21st	1	13	,,	42	32	,,	Hattori
,,	,,	3	10	,,	42	10	,,	,,
,,	,,	5	25	,,	41	20	,,	,,
,,	,,	7	7	,,	40	7	Sinzyō	Sinzyō
,,	,,	8	18	,,	40	38	,,	,,
,,	,,	9	12	,,	41	47	,,	Hattori
,,	,,	10	12	,,	42	48	,,	,,
,,	,,	11	14	,,	43	54	,,	Sinzyō
,,	,,	12	25	,,	43	29	Hattori	,,
,,	,,	14	0	,,	42	57	,,	,,
Mean				3	42′	23″		

$\delta = 3°\ \ 42.38$

Reduction to 1895.0 = 2.53

,, ,, sea level = 0.00

$\delta = 3°\ \ 44.9$

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 20th 22h 38m	1	45° 15.3	Imamura	Hattori
,, 21st 8 45	1	,, 7.2	Sinzyō	Sinzyō
,, ,, 9 54	1	,, 7.8	Hattori	,,
,, ,, 11 10	2	,, 6.8	Sinzyō	Hattori
Mean		45° 9.3		

$\theta = 45°\ 9'.3$

Reduction to 1895.0 = 3.41

,, ,, sea level = 0.00

$\theta = 45°\ 12'.7$

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 20th 21h 15m	0.31995	422.98	28.8C	5.7123 s	28.9C	5 41′27″.5	12 57′45″.0	28.8 C	Imamura	Hattori
,, 21st 6 48	0.32017	422.71	29.2	5.7117	29.1	5 40 57 .5	12 56 40 .0	29.3	{ Hattori { Imamura	{ Imamura { Hattori
,, ,, 13 36	0.31994	421.37	33.3	5.7237	33.4	5 40 0 .0	12 54 16 .3	33.3	{ Hattori { Sinzyō	{ Sinzyō { Hattori
Mean	0.32002									

$H = 0.32002$

Reduction to 1895.0 = −4100

,, ,, sea level = 000

$H = 0.31961$

301. KASEDA.

Common School (加世田小學校運動場)

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time)	Needle No.	θ	Observer	Recorder
July 22th 9h 57m	1	45 7.5	Sinzyō	Sinzyō

$\theta = 45°\ 7'.5$

Reduction to 1895.0 = 3.43

,, ,, sea level = 0.00

$\theta = 45°\ 10'.9$

HORIZONTAL INTENSITY (H)

(*Value deduced from Vibration only by assuming Value of M.)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 22nd 6h 19m	*0.32122	421.87	31.8C	5.7085 s	31.8C	—	—	—	Sinzyō	Sinzyō
,, ,, 9 26	*0.32095	421.85	32.0	5.7110	32.0	—	—	—	Hattori	Hattori
Mean	0.32108									

$H = 0.32108$

Reduction to 1895.0 = −4092

,, ,, sea level = 000

$H = 0.32067$

302. YOKOGAWA.

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	24th	18h	27m	3°	56′	26″	Imamura	Sinzyō
,,	,,	18	35	,,	56	9	,,	,,
,,	,,	19	39	,,	55	46	Hattori	,,
,,	,,	21	28	,,	56	49	Imamura	,,
,,	,,	22	23	,,	56	4	,,	,,
,,	25th	0	30	,,	55	33	Sinzyō	,,
,,	,,	3	42	,,	54	52	Imamura	Imamura
,,	,,	5	49	,,	54	18	,,	,,
,,	,,	6	54	,,	53	3	Sinzyō	Sinzyō
,,	,,	7	50	,,	53	28	Imamura	Hattori
,,	,,	8	59	,,	53	52	Hattori	,,
,,	,,	9	53	,,	55	24	,,	,,
,,	,,	10	56	,,	57	26	Imamura	Sinzyō
,,	,,	11	47	,,	58	57	Sinzyō	Imamura
,,	,,	13	7	4	0	41	,,	Hattori
,,	,,	13	53	,,	0	26	,,	Sinzyō
,,	,,	14	28	3	59	28	,,	Hattori
Mean				3°	56′	14″		

δ = 3° 56′.23
Reduction to 1895.0 = 1.86
,, ,, sea level = −0.01
δ = 3° 58′.1

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	24th	21h	0m	1	45°	6′.5	Sinzyō	Sinzyō
,,	25th	8	32	1	,,	6.2	Hattori	Hattori
,,	,,	11	12	1	,,	3.9	Imamura	Imamura
Mean					45°	5′.5		

θ = 45° 5′.5
Reduction to 1895.0 = 3.59
,, ,, sea level = −0.04
θ = 45° 9′.1

HORIZONTAL INTENSITY (*H*)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	24th	10h	6m	0.31749	423.87	25°.1C	5s.7287	25°.6C	5°44′50″.0	13° 5′21″.3	25°.2C	Sinzyō Imamura	Imamura Sinzyō
,,	25th	7	35	0.31752	423.90	26.6	5.7233	25.1	5 44 5.0	13 3 26.2	28.1	,, Sinzyō	,, Imamura
,,	,,	12	38	0.31788	419.71	36.9	5.7512	36.2	5 40 30.0	12 55 26.2	37.7	Hattori Imamura	,, Hattori
Mean				0.31763									

H = 0.31763
Reduction to 1895.0 = −3988
,, ,, sea level = 218
H = 0.31725

303. HITOYOSI.

Nakagawara (人吉中河原兩橋上流)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	26th	18h	18m	4°	6′	34″	Imamura	Sinzyō
„	„	18	43	„	6	31	Sinzyō	Hattori
„	„	19	41	„	7	35	Hattori	„
„	„	21	38	„	7	35	Sinzyō	„
„	„	22	30	„	8	18	„	„
„	„	23	31	„	7	13	„	Sinzyō
„	27th	1	37	„	7	36	„	„
„	„	5	3	„	5	56	Hattori	„
„	„	5	33	„	6	31	Sinzyō	Hottori
„	„	6	38	„	4	39	„	„
„	„	7	46	„	4	49	Imamura	Imamura
„	„	8	47	„	5	34	Hattori	Sinzyō
„	„	9	48	„	7	10	Sinzyō	Hattori
„	„	10	31	„	8	15	„	„
„	„	11	55	„	9	50	„	„
„	„	12	17	„	10	44	Hattori	Sinzyō
„	„	12	30	„	11	14	Sinzyō	„
„	„	13	45	„	11	49	„	Hattori
„	„	14	21	„	11	50	„	Sinzyō
Mean				4	7′	50″		

δ = 4 7′.83
Reduction to 1895.0 = 1.62
„ „ sea level = −0.01

δ = 4° 9′.4

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder.
July	26th	22h	9m	1	45°	58′.3	Sinzyō	Hattori
„	27th	7	30	1	„	56.3	Imamura	Imamura
„	„	11	7	1	„	55.9	Hattori	Hattori
Mean					45	56′.8		

θ = 45° 56′.8
Reduction to 1895.0 = 3.77
„ „ sea level = −0.03

θ = 46° 0′.5

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	26th	19h	15m	0.31739	422.75	27°.0C	5.7381 s	27°.5C	5° 41′ 17″.5	13° 4′ 25″.0	26°.5C	{ Imamura Sinzyō	{ Sinzyō Imamura
„	27th	6	13	0.31760	423.80	23.7	5.7269	23.2	5 44 41 .3	13 5 26 .3	24.2	{ „ Hattori	{ Hattori Sinzyō
„	„	13	29	0.31717	418.73	37.1	5.7657	36.7	5 40 35 .0	12 55 35 .0	37.4	{ „ Sinzyō	{ „ Hattori
Mean				0.31739									

H = 0.31739
Reduction to 1895.0 = −3988
„ „ sea level = 146

H = 0.31701

304. YUNOMAE.

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
July 27th 22h 1m	3° 59′ 25″	Imamura	Sinzyō
,, ,, 22 59	,, 59 40	,,	,,
,, 28th 0 22	,, 58 59	Sinzyō	Imamura
,, ,, 4 43	,, 57 28	Imamura	,,
,, ,, 6 48	,, 55 20	Sinzyō	Sinzyō
,, ,, 7 47	,, 54 43	Imamura	Imamura
,, ,, 8 49	,, 55 31	,,	,,
,, ,, 9 59	,, 58 48	Sinzyō	Sinzyō
,, ,, 10 47	4 0 30	Imamura	,,
,, ,, 11 42	,, 2 29	Sinzyō	Imamura
,, ,, 12 37	,, 4 41	Imamura	,,
,, ,, 13 44	,, 4 44	,,	,,
Mean	3° 59′ 22″		

$\delta = 3°\ 59'.37$

Reduction to 1895.0 = 1.51

,, ,, sea level = −0.04

$\delta = 4°\ 0'.8$

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
July 28th 0h 3m	1	45° 58′.3	Sinzyō	Sinzyō
,, ,, 8 21	1	46 0.2	Imamura	Imamura
,, ,, 10 25	1	45 53.6	Sinzyō	,,
Mean		45° 57′.4		

$\theta = 45°\ 57'.4$

Reduction to 1895.0 = 3.61

,, ,, sea level = −0.15

$\theta = 46\ \ 0'.9$

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July 27th 22h 45m	0.31697	423.45	24.5C	s 5.7376	25.2C	5°45′16″.3	13 0′25″.0	23.8C	Sinzyō Imamura	Imamura Sinzyō
,, 28th 7 34	0.31720	423.20	25.5	5.7349	25.4	5 44 31.2	13 1 40.0	25.6	,, Sinzyō	,, Imamura
,, ,, 11 16	0.31744	420.19	34.1	5.7515	33.3	5 41 31.2	12 58 0.0	34.9	Imamura Sinzyō	Sinzyō Imamura
Mean	0.31720									

$H = 0.31720$

Reduction to 1895.0 = −3899

,, ,, sea level = 805

$H = 0.31689$

305. YATUSIRO.

Common School (小 學 校)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
July	29th	16h	56m	4°	0′	45″	Imamura	Hattori
,,	,,	17	45	3	59	50	,,	,,
,,	,,	18	48	4	0	28	,,	Sinzyō
,,	,,	19	32	3	59	56	Sinzyō	,,
,,	,,	20	46	4	0	15	Hattori	Hattori
,,	,,	22	11	3	59	59	,,	,,
,,	,,	23	21	4	0	9	,,	,,
,,	30th	0	12	3	59	5	,,	,,
,,	,,	2	58	,,	58	26	,,	,,
,,	,,	5	35	,,	57	50	,,	,,
,,	,,	6	28	,,	57	24	,,	,,
,,	,,	7	10	,,	56	46	Sinzyō	Imamura
,,	,,	8	1	,,	56	5	,,	Sinzyō
,,	,,	8	55	,,	56	19	,,	,,
,,	,,	10	3	,,	57	56	,,	,,
,,	,,	10	59	,,	58	51	Imamura	,,
,,	,,	12	31	4	0	49	Sinzyō	Hattori
,,	,,	13	11	,,	1	19	,,	Sinzyō
,,	,,	14	14	,,	1	16	,,	,,
,,	,,	15	10	,,	1	18	Imamura	Imamura
Mean				3°	59′	22″		

$\delta = 3° \ 59'.37$

Reduction to 1895.0 = 1.55

,, ,, sea level = 0.00

$\delta = 4° \ 0'.9$

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
July	29th	21h	41m	1	46°	26′.1	Hattori	Hattori
,,	30th	8	19	1	,,	27.4	Imamura	Sinzyō
,,	,,	12	55	1	,,	27.7	,,	,,
Mean					46°	27′.1		

$\theta = 46° \ 27'.1$

Reduction to 1895.0 = 4.11

,, ,, sea level = 0.00

$\theta = 46° \ 31'.2$

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib².	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
July	29th	19h	14m	0.31729	420.85	31°.8C	s 5.7508	31°.8C	5°42′32″.5	13° 0′16″.3	31°.7C	Sinzyō Imamura	Imamura Sinzyō
,,	30th	7	41	0.31737	420.32	33.2	5.7500	32.0	5 41 33.8	12 58 5.0	34.4	,, Sinzyō	,, Imamura
,,	,,	12	13	0.31742	419.20	38.1	5.7599	37.7	5 40 35.0	12 55 30.0	38.6	Hattori Sinzyō	Sinzyō Hattori
,,	,,	13	44	0.31751	419.18	37.6	5.7623	38.2	5 40 56.3	12 56 26.3	36.9	,, Imamura	Imamura Sinzyō
Mean				0.31753									

$H = 0.31753$

Reduction to 1895.0 = −040

,, ,, sea level = 000

$H = 0.31713$

306. MINAMATA.

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	1st	9h	18m	3°	52′	56″	Imamura	Sinzyō
,,	,,	10	19	,,	54	56	,,	,,
,,	,,	11	9	,,	56	12	,,	,,
,,	,,	12	17	,,	59	47	,,	,,
,,	,,	13	11	,,	59	56	Sinzyō	Imamura
,,	,,	14	6	4	0	14	Hattori	Sinzyō
,,	,,	15	9	3	59	59	Sinzyō	Hattori
,,	,,	16	24	,,	57	18	Imamura	,,
,,	,,	17	30	,,	57	8	Sinzyō	Sinzyō
,,	,,	18	24	,,	56	49	Imamura	Hattori
,,	,,	19	32	,,	56	17	,,	,,
,,	,,	20	38	,,	56	23	Hattori	,,
,,	,,	22	19	,,	57	38	,,	,,
,,	,,	22	55	,,	57	24	,,	,,
,,	2nd	1	7	,,	56	53	,,	,,
,,	,,	3	47	,,	55	9	,,	,,
,,	,,	4	59	,,	55	8	,,	,,
,,	,,	5	17	,,	54	33	,,	,,
,,	,,	5	54	,,	54	21	Sinzyō	Imamura
Mean				3°	56′	24″		

$\delta = 3°\ 56'.40$

Reduction to 1895.0 = 1.87

,, ,, sea level = 0.00

$\delta = 3°\ 58'.3$

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	1st	9h	53m	1	46°	3′.7	Sinzyō	Sinzyō
,,	,,	14	34	1	,,	3.5	Imamura	,,
,,	,,	16	49	2	45	58.5	Sinzyō	,,
Mean					46°	1′.9		

$\theta = 46°\ 1'.9$

Reduction to 1895.0 = 4.11

,, ,, sea level = 0.00

$\theta = 46°\ 6'.0$

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_V	Mean Deflections		Temp. t_D	Observer	Recorder
									φ_1	φ_2			
Aug.	1st	10h	54m	0.32094	420.93	30°.8C	s 5.7161	30°.4C	5°38′37″.5	21°51′21″.2	31°.3C	Imamura Sinzyō	Sinzyō Imamura
,,	,,	13	45	0.32141	420.09	35.0	5.7203	35.4	5 37 45.0	12 49 10.0	34.6	,, Hattori	Hattori Sinzyō
,,	,,	19	3	0.32077	421.72	27.8	5.7139	28.0	5 39 33.8	12 53 18.8	27.7	,, Imamura	Imamura Hattori
Mean				0.32104									

$H = 0.32104$

Reduction to 1895.0 = −4147

,, ,, sea level = 000

$H = 0.32063$

307. SIMABARA.

Old Castle (島原舊城)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 2nd 18h 12m	4 1′ 34″	Imamura	Hattori
,, ,, 20 0	,, 6 0	Hattori	,,
,, ,, 22 20	,, 5 6	Sinzyō	Sinzyō
,, ,, 23 50	,, 5 23	,,	,,
,, 3rd 1 16	,, 4 49	,,	,,
,, ,, 2 53	,, 4 48	,,	,,
,, ,, 4 5	,, 1 35	,,	,,
,, ,, 5 37	,, 3 16	,,	,,
,, ,, 6 38	,, 3 4	,,	,,
,, ,, 7 33	,, 2 14	Hattori	Hattori
,, ,, 8 34	,, 3 32	,,	Imamura
,, ,, 9 21	,, 5 16	Imamura	Hattori
,, ,, 10 33	,, 6 44	Hattor	Sinzyō
,, ,, 11 31	,, 7 16	Sinzyō	Imamura
,, ,, 12 12	,, 9 2	,,	Hattori
,, ,, 13 32	,, 9 5	,,	,,
,, ,, 14 33	,, 7 59	Imamura	,,
,, ,, 15 30	,, 7 5	Sinzyō	,,
,, ,, 16 35	,, 6 10	,,	,,
,, ,, 17 26	,, 5 12	,,	,,
,, ,, 17 47	,, 5 11	Imamura	Sinzyō
Mean	4° 5′ 34″		

$\delta = 4°\ 5'.57$

Reduction to 1895.0 = 1.62

,, ,, sea level = 0.00

$\delta = 4°\ 7'.2$

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 3rd 6h 23m	1	46° 51′.1	Sinzyō	Sinzyō
,, ,, 9 21	1	,, 50.8	Hattori	Imamura
,, ,, 14 16	1	,, 49.6	Imamura	Hattori
Mean		46° 50′.5		

$\theta = 46°\ 50'.5$

Reduction to 1895.0 = 4.76

,, ,, sea level = 0.00

$\theta = 46°\ 55'.3$

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 3rd 8h 15m	0.31419	420.96	30.4C	5.7773s	30.0C	5 46′ 5″.0	13° 8′ 48″.8	30.8C	Imamura Hattori	Hattori Imamura
,, ,, 13 17	0.31411	417.95	38.1	5.7999	38.0	5 43 18.8	13 1 55.0	38.3	,, Sinzyō	Sinzyō Hattori
,, ,, 17 3	0.31452	420.24	32.6	5.7808	32.6	5 45 0.0	13 5 52.5	32.5	,, Imamura	Imamura Sinzyō
Mean	0.31427									

$H = 0.31427$

Reduction to 1895.0 = − 4227

,, ,, sea level = 000

$H = 0.31385$

308. NAGASAKI.

Sakura no Baba (櫻 ノ 馬 場)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	4th	19h	45m	4°	23′	13″	Imamura	Sinzyō
,,	,,	20	7	,,	22	57	Sinzyō	Hattori
,,	,,	22	45	,,	23	9	Imamura	Imamura
,,	,,	23	43	,,	22	47	,,	,,
,,	5th	1	32	,,	22	52	,,	,,
,,	,,	3	50	,,	22	51	,,	,,
,,	,,	5	16	,,	21	48	,,	,,
,,	,,	6	12	,,	20	26	,,	,,
,,	,,	7	8	,,	20	18	,,	,,
,,	,,	8	3	,,	20	59	Sinzyō	Hattori
,,	,,	9	16	,,	22	7	,,	,,
,,	,,	10	35	,,	23	56	Hattori	Sinzyō
,,	,,	11	35	,,	23	46	Sinzyō	Hattori
,,	,,	12	59	,,	24	42	,,	,,
,,	,,	14	8	,,	24	22	Hattori	Sinzyō
,,	,,	15	19	,,	23	47	Imamura	Imamura
,,	,,	16	14	,,	23	32	,,	Sinzyō
,,	,,	17	19	,,	23	32	,,	,,
,,	,,	18	0	,,	23	29	,,	,,
Mean				4°	22′	58″		

$\delta = 4°\ 22'.97$

Reduction to 1895.0 = 1.83

,, ,, sea level = 0.00

$\delta = 4°\ 24'.8$

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	5th	9h	1m	1	47°	11'.5	Sinzyō	Hattori
,,	,,	12	26	1	,,	11.7	Hattori	Sinzyō
,,	,,	16	0	1	,,	13.4	Imamura	,,
Mean					47°	12'.2		

$\theta = 47\ 12'.2$

Reduction to 1895.0 = 5.25

,, ,, sea level = 0.00

$\theta = 47°\ 17'.5$

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	5th	7h	13m	0.31877	420.57	31°.1C	5.7372	30°.5C	5°40′22″.5	12°55′ 5″.0	31°.8C	Imamura Sinzyō	Sinzyō Imamura
,,	,,	13	48	0.31934	419.02	36.1	5.7473	37.0	5 38 57.5	12 51 52.5	35.3	,, Hattori	Hattori Sinzyō
,,	,,	17	1	0.31912	419.95	32.7	5.7437	34.0	5 40 3.8	12 54 18.8	31.5	,, Imamura	Imamura Hattori
Mean				0.31908									

$H = 0.31908$

Reduction to 1895.0 = −1415

,, ,, sea level = 000

$H = 0.31864$

309. SASEBO.

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	6th	16h	30m	4°	10′	45″	Imamura	Sinzyō
,,	,,	17	22	,,	9	47	Sinzyō	Imamura
,,	,,	18	23	,,	8	53	,,	,,
,,	,,	19	20	,,	8	48	Hattori	Hattori
,,	,,	21	2	,,	8	55	,,	,,
,,	,,	22	14	,,	8	51	,,	,,
,,	,,	23	43	,,	8	35	,,	,,
,,	7th	1	35	,,	8	38	,,	,,
,,	,,	3	54	,,	5	18	,,	,,
,,	,,	5	5	,,	5	40	,,	,,
,,	,,	5	49	,,	4	18	,,	,,
,,	,,	7	20	,,	7	51	Sinzyō	Imamura
,,	,,	7	44	,,	7	51	,,	,,
,,	,,	8	28	,,	7	40	,,	,,
,,	,,	9	7	,,	8	17	Imamura	Sinzyō
,,	,,	10	9	,,	10	35	,,	,,
,,	,,	10	37	,,	12	27	Sinzyō	Hattori
,,	,,	11	14	,,	13	5	Imamura	,,
,,	,,	11	58	,,	12	6	,,	Sinzyō
,,	,,	12	19	,,	13	15	,,	Hattori
,,	,,	13	12	,,	13	57	,,	,,
,,	,,	13	48	,,	14	51	Sinzyō	,,
Mean				4°	9′	14″		

$\delta = 4°\ \ 9'.23$
Reduction to 1895.0 = 1.79
,, ,, sea level = 0.00

$\delta = 4°\ \ 11'.0$

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time)				Needle No.	θ		Observer	Recorder
Aug.	6th	18h	44m	1	47°	25′.7	Imamura	Sinzyō
,,	7th	6	28	1	,,	23.4	Hattori	Hattori
,,	,,	10	59	1	,,	25.4	Sinzyō	,,
Mean					47°	24′.8		

$\theta = 47°\ \ 24'.8$
Reduction to 1895.0 = 6.08
,, ,, sea level = 0.00

$\theta = 47°\ \ 30'.9$

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	6th	18h	10m	0.31519	421.10	28°.9 C	5s.7693	29°.3 C	5° 45′ 11″.2	13° 6′ 21″.2	28°.5 C	Imamura Sinzyō	Sinzyō Imamura
,,	7th	8	13	0.31517	420.65	30.2	5.7706	30.0	5 41 40.0	13 5 17.5	30.5	,, Imamura	,, Sinzyō
,,	,,	12	59	0.31482	418.57	34.8	5.7879	34.5	5 43 8.8	13 1 40.0	35.2	Hattori Imamura	Imamura Hattori
Mean				0.31506									

$H = 0.31506$
Reduction to 1895.0 = −4592
,, ,, sea level = 000

$H = 0.31460$

310. MATIYAMAGUTI.

Conmon School (尋 常 小 學 校)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	9th	5h	25m	3°	51′	10″	Imamura	Hattori
,,	,,	5	54	,,	50	40	Hattori	Imamura
,,	,,	6	30	,,	50	8	Sinzyō	Sinzyō
,,	,,	7	49	,,	49	23	,,	Imamura
,,	,,	8	24	,,	49	30	Imamura	Sinzyō
,,	,,	9	34	,,	51	42	,,	,,
,,	,,	10	47	,,	54	50	,,	Imamura
,,	,,	12	0	,,	56	2	,,	Sinzyō
,,	,,	13	6	,,	56	22	Sinzyō	,,
,,	,,	14	5	,,	55	48	,,	,,
,,	,,	14	52	,,	56	9	Imamura	,,
,,	,,	15	40	,,	55	33	Sinzyō	,,
,,	,,	16	42	,,	54	8	Imamura	Imamura
,,	,,	17	34	,,	53	32	,,	Sinzyō
,,	,,	18	12	,,	53	24	,,	Imamura
,,	,,	18	57	,,	54	5	Sinzyō	Sinzyō
,,	,,	20	50	,,	54	25	,,	,,
,,	,,	21	36	,,	54	34	,,	,,
,,	,,	23	42	,,	53	48	,,	,,
,,	10th	4	37	,,	52	40	,,	,,
,,	,,	5	31	,,	52	10	,,	Imamura
Mean				3°	53′	33″		

δ = 3° 53′.55
Reduction to 1895.0 = 1.90
,, ,, sea level = 0.00
δ = 3° 55′.5

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	9th	8h	59m	1	46°	24′.8	Imamura	Sinzyō
,,	,,	13	33	1	,,	20.8	Sinzyō	Imamura
,,	,,	17	53	1	,,	23.1	Imamura	Sinzyō
Mean					46°	22′.9		

θ = 46° 22′.9
Reduction to 1895.0 = 4.81
,, ,, sea level = 0.00
θ = 46° 27′.7

HORIZONTAL INTENSITY (*H*)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	9th	7h	32m	0.31750	420.67	28°.6C	s 5.7485	28°.2C	5°42′18″.8	13° 0′10″.0	29°.0C	Imamura Sinzyō	Sinzyō Imamura
,,	,,	12	50	0.31734	421.52	26.9	5.7447	26.7	5 42 52.5	13 0 53.8	27.1	,, Imamura	,, Sinzyō
,,	,,	17	17	0.31741	420.67	30.2	5.7553	31.7	5 42 51.3	13 1 2.5	28.6	,, Sinzyō	,, Imamura
Mean				0.31742									

H = 0.31742
Reduction to 1895.0 = −4334
,, ,, sea level = 000
H = 0.31699

311. KUMAMOTO.

Fifth High School (第五高等學校)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	10th	17h	44m	4°	7'	34"	Imamura	Sinzyō
,,	,,	18	18	,,	7	50	Sinzyō	Hattori
,,	,,	19	24	,,	8	29	,,	,,
,,	,,	22	52	,,	7	44	Imamura	Imamura
,,	,,	23	29	,,	7	19	,,	,,
,,	11th	1	53	,,	7	4	,,	,,
,,	,,	4	54	,,	5	48	,,	,,
,,	,,	6	2	,,	4	58	,,	,,
,,	,,	7	12	,,	2	54	Sinzyō	Sinzyō
,,	,,	7	37	,,	3	45	,,	,,
,,	,,	7	58	,,	3	47	,,	Hattori
,,	,,	9	13	,,	4	58	,,	Sinzyō
,,	,,	10	20	,,	7	17	,,	,,
,,	,,	11	29	,,	9	3	,,	Imamura
,,	,,	12	23	,,	11	12	,,	Hattori
,,	,,	13	16	,,	12	42	Imamura	Sinzyō
,,	,,	14	10	,,	11	57	Sinzyō	Imamura
,,	,,	15	15	,,	10	17	Hattori	Hattori
,,	,,	16	32	,,	7	38	Sinzyō	Sinzyō
Mean				4°	7'	36"		

δ = 4° 7'.60
Reduction to 1895.0 = 1.42
,, ,, sea level = 0.00
δ = 4° 9'.0

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	11th	6h	51m	1	46°	47'.1	Imamura	Sinzyō
,,	,,	12	54	1	,,	46.5	,,	,,
,,	,,	15	46	1	,,	47.1	Hattori	,,
Mean					46°	46'.9		

θ = 46° 46'.9
Reduction to 1895.0 = 4.51
,, ,, sea level = 0.00
θ = 46° 51'.4

HORIZONTAL INTENSITY (*H*)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_n	Observer	Recorder
Aug.	10th	18h	59m	0.31393	421.71	26°.6 C	5.7767 s	27°.0 C	5° 46' 57".5	13 10' 10".0	26.4C	Sinzyō Hattori	Hattori Sinzyō
,,	11th	8	42	0.31374	420.26	29.4	5.7832	28.2	5 45 18.8	13 6 25.0	30.7	,, Sinzyō	,, Hattori
,,	,,	8	47	0.31377	419.99	30.0	5.7832	28.2	5 44 57.5	13 5 46.3	31.9	Hattori Sinzyō	Sinzyō Hattori
,,	,,	13	49	0.31481	418.23	36.1	5.7929	36.6	5 43 11.2	13 1 48.8	35.5	Imamura Sinzyō	Sinzyō Imamura
Mean				0.31407									

H = 0.31407
Reduction to 1895.0 = −4173
,, ,, sea level = 25
H = 0.31365

312. MIYADI.

High Common School (阿蘇中部高等小學校運動場)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time)				δ			Observer	Recorder
Aug.	13th	7h	58m	3°	44′	51″	Imamura	Sinzyō
,,	,,	8	28	,,	45	40	Sinzyō	Hattori
,,	,,	9	46	,,	48	25	Hattori	Sinzyō
,,	,,	10	52	,,	53	37	Imamura	,,
,,	,,	11	1	,,	53	47	,,	,,
,,	,,	11	52	,,	54	31	,,	,,
,,	,,	13	15	,,	55	19	Hattori	,,
,,	,,	14	18	,,	54	59	,,	Imamura
,,	,,	15	18	,,	53	55	Sinzyō	,,
,,	,,	16	22	,,	52	29	,,	,,
,,	,,	17	22	,,	51	56	Imamura	Sinzyō
,,	,,	18	17	,,	51	24	,,	Imamura
,,	,,	18	46	,,	51	16	,,	,,
,,	,,	20	51	,,	50	37	Sinzyō	Sinzyō
,,	,,	22	37	,,	50	41	,,	,,
,,	14th	4	28	,,	49	11	,,	,,
,,	,,	5	52	,,	48	20	,,	,,
,,	,,	6	29	,,	46	59	,,	,,
,,	,,	6	55	,,	45	52	,,	,,
,,	,,	7	29	,,	45	17	,,	,,
Mean				3°	50′	41″		

$\delta = 3° \quad 50\overset{'}{.}68$

Reduction to 1895.0 = 1.10

,, ,, sea level = −0.03

$\delta = 3° \quad 51\overset{'}{.}8$

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	13th	10h	30m	1	46°	58′.1	Hattori	Hattori Imamura
,,	,,	14	53	1	,,	59.8	Sinzyō	,,
,,	,,	17	13	1	,,	59.8	Imamura	,,
Mean					46°	59′.2		

$\theta = 46° \quad 59\overset{'}{.}2$

Reduction to 1895.0 = 4.37

,, ,, sea level = −0.10

$\theta = 47° \quad 3\overset{'}{.}5$

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	13th	9h	15m	0.31519	421.04	28°.8C	5.7645 s	27.5C	5°44′21″.3	13° 4′12″.5	30°.2C	Sinzyō Hattori	Hattori Sinzyō
,,	,,	13	53	0.31489	419.30	29.8	5.7826	29.7	5 43 51 .3	13 3 20 .0	29.9	,, Imamura	Imamura Hattori
,,	,,	17	12	0.31561	421.11	26.5	5.7653	27.0	5 44 48 .8	13 5 28 .8	26.1	,, Sinzyō	Sinzyō Imamura
Mean				0.31523									

$H = 0.31523$

Reduction to 1895.0 = −4056

,, ,, sea level = 632

$H = 0.31489$

313. MAMIBARA.

Near Court of Justice (裁判所前ノ畑中)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 15th 6h 22	3° 43′ 17″	Imamura	Hattori
,, ,, 6 41	,, 42 23	Sinzyō	,,
,, ,, 7 25	,, 41 32	Hattori	Sinzyō
,, ,, 8 22	,, 41 23	Imamura	Hattori
,, ,, 9 34	,, 43 48	Sinzyō	,,
,, ,, 10 36	,, 46 22	,,	,,
,, ,, 11 28	,, 47 37	Hattori	Sinzyō
,, ,, 12 19	,, 48 33	Imamura	Imamura
,, ,, 13 16	,, 48 3	Sinzyō	Hattori
,, ,, 14 26	,, 46 32	,,	,,
,, ,, 15 25	,, 46 4	,,	,,
,, ,, 16 26	,, 45 57	,,	Sinzyō
,, ,, 17 16	,, 45 48	,,	Imamura
,, ,, 17 58	,, 45 29	,,	Sinzyō
,, ,, 19 6	,, 44 51	Imamura	Imamura
,, ,, 20 23	,, 43 54	,,	Sinzyō
,, ,, 21 50	,, 43 56	,,	Imamura
,, 16th 1 10	,, 43 4	,,	,,
,, ,, 3 15	,, 42 24	,,	,,
,, ,, 5 11	,, 41 58	,,	,,
,, ,, 5 47	,, 41 42	,,	,,
Mean	3° 44′ 21″		

δ = 3° 44.′35
Reduction to 1895.0 = 1.20
,, ,, sea level = −0.03
δ = 3° 45.′5

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 15th 9h 11m	1	47° 18.′7	Imamura	Imamura
,, ,, 11 56	1	,, 16.4	Hattori	Sinzyō
,, ,, 17 37	1	,, 19.5	Sinzyō	,,
Mean		47° 18.′2		

θ = 47° 18.′2
Reduction to 1895.0 = 3.89
,, ,, sea level = −0.11
θ = 47° 22.′0

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 15th 8h 3m	0.31513	421.16	27.5 C	s 5.7666	27.0 C	5 15′ 2.″5	13 5′58.″8	28.0 C	Imamura Hattori	Hattori Imamura
,, ,, 13 46	0.31480	419.11	31.0	5.7874	31.7	5 41 0.0	13 3 31.3	30.3	,, Sinzyō	Sinzyō Hattori
,, ,, 13 51	0.31487	419.30	30.4	5.7874	31.7	5 41 20.0	13 4 18.8	29.0	Hattori Sinzyō	Sinzyō Hattori
,, ,, 17 8	0.31521	420.79	27.3	5.7706	27.5	5 45 1.3	13 6 10.0	27.1	Sinzyō Imamura	Imamura Sinzyō
Mean	0.31500									

H = 0.31500
Reduction to 1895.0 = −3958
,, ,, sea level = 664
H = 0.31467

314. YANAGAWA.

Middle School, Densyūkwan (柳川尋常中學傳習館運動場)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	17th	17h	0m	4°	10′	31″	Imamura	Hattori
,,	,,	18	10	,,	10	48	,,	Imamura
,,	,,	20	2	,,	10	11	Hattori	Hattori
,,	,,	21	17	,,	10	20	,,	,,
,,	,,	22	41	,,	10	6	,,	,,
,,	18th	0	15	,,	9	38	,,	,,
,,	,,	2	17	,,	8	38	,,	,,
,,	,,	4	16	,,	6	35	,,	,,
,,	,,	5	4	,,	6	23	,,	,,
,,	,,	6	6	,,	1	41	,,	,,
,,	,,	7	4	,,	6	43	,,	,,
,,	,,	8	28	,,	7	35	Sinzyō	Imamura
,,	,,	8	42	,,	8	6	Imamura	Sinzyō
,,	,,	9	47	,,	9	58	Sinzyō	,,
,,	,,	10	35	,,	12	43	,,	,,
,,	,,	11	50	,,	15	53	,,	Hattori
,,	,,	12	58	,,	15	23	Imamura	Imamura
,,	,,	14	7	,,	13	33	Sinzyō	Hattori
,,	,,	15	11	,,	12	26	Hattori	Sinzyō
,,	,,	16	2	,,	11	19	Sinzyō	,,
Mean				4°	10′	10″		

δ = 4° 10.′17

Reduction to 1895.0 = 1.39

,, ,, sea level = 0.00

δ = 4° 11.′6

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	18th	8h	6m	1	47°	17.′7	Hattori	Sinzyō
,,	,,	13	51	1	,,	17.0	Imamura	Imamura
,,	,,	15	39	1	,,	16.6	Sinzyō	Sinzyō
Mean					47	17.1		

θ = 47° 17.′1

Reduction to 1895.0 = 5.38

,, ,, sea level = 0.00

θ = 47° 22.′5

HORIZONTAL INTENSITY (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	17th	19h	23m	0.31487	421.65	25.°3C	s 5.7685	25.°7C	5°46′ 1.″3	13° 8′15.″0	25.0C	Sinzyō Imamura	Imamura Sinzyō
,,	18th	9	23	0.31436	422.65	23.7	5.7653	23.8	5 46 53.8	13 9 33.8	23.7	,, Sinzyō	,, Imamura
,,	,,	14	48	0.31486	420.57	27.6	5.7756	27.9	5 45 8.8	13 6 22.5	27.4	Hattori	Sinzyō
Mean				0.31469									

H = 0.31469

Reduction to 1895.0 = −4368

,, ,, sea level = 000

H = 0.31125

315. HUKUOKA.

Play Ground, Syūyūkwan (修猷館運動場)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	19th	7h	53m	4	19′	56″	Imamura	Hattori
,,	,,	8	35	,,	20	35	Sinzyō	,,
,,	,,	9	27	,,	22	21	Imamura	Sinzyō
,,	,,	10	28	,,	25	12	,,	Hattori
,,	,,	11	30	,,	26	53	Hattori	Sinzyō
,,	,,	12	25	,,	27	25	Sinzyō	Hattori
,,	,,	13	35	,,	26	16	Hattori	Sinzyō
,,	,,	14	38	,,	24	31	,,	Hattori
,,	,,	15	46	,,	21	42	,,	,,
,,	,,	16	41	,,	21	21	,,	,,
,,	,,	17	42	,,	21	15	Sinzyō	Hattori
,,	,,	18	26	,,	21	43	Imamura	Sinzyō
,,	,,	20	12	,,	22	52	Sinzyō	,,
,,	,,	20	47	,,	23	3	,,	,,
,,	,,	23	4	,,	22	8	,,	,,
,,	,,	23	56	,,	22	16	,,	,,
,,	20th	4	40	,,	21	2	,,	,,
,,	,,	5	12	,,	19	27	Hattori	Hattori
,,	,,	6	8	,,	19	13	,,	,,
,,	,,	7	52	,,	20	1	,,	,,
Mean				4°	22′	32″		

$\delta = 4°\ 22'.53$

Reduction to 1895.0 = 1.00

,, ,, sea level = 0.00

$\delta = 4°\ 23'.5$

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				Needle No.	θ		Observer	Recorder
Aug.	19th	9h	48m	1	47°	56.2	Sinzyō	Imamura
,,	,,	13	55	1	,,	54.7	Imamura	Hattori
,,	,,	17	13	1	,,	55.5	Hattori	Sinzyō
Mean					47°	55.5		

$\theta = 47°\ 55'.5$

Reduction to 1895.0 = 5.51

,, ,, sea level = 0.00

$\theta = 48°\ 1'.0$

HORIZONTAL INTENSITY (*H*)

(* *Value deduced from Vibration only by assuming Value of M.*)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug.	19th	9h	10m	0.31219	420.70	28.8C	5.7981	28.6C	5 47′45″.0	13 11′56″.3	29.0C	Imamura Sinzyō	Sinzyō Imamura
,,	,,	13	4	*0.31288	418.45	34.9	5.8102	35.5	(5 45 35.0	13 7 23.8	34.3)	,,	Hattori
,,	,,	13	10	0.31300	418.58	34.9	5.8083	35.5	5 45 35.0	13 7 23.8	34.3	,, Hattori	,, Sinzyō
,,	,,	18	11	0.31189	419.15	29.8	5.8161	31.0	5 47 27.5	13 11 28.8	28.5	,, Imamura	Imamura Hattori
Mean				0.31249									

H = 0.31249

Reduction to 1895.0 = −4281

,, ,, sea level = 000

H = 0.31206

Hukuoka Syuttyō (福岡出張)

Observations of the South West Party, 1896.

Station, 1887. (千八百八十七年ノ觀測點)

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 19th 14h 5m	1	47° 56.0	Imamura	Sinzyō
,, ,, 14 23	1	,, 57.3	Sinzyō	Imamura
Mean		47° 56.7		

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 19th 14h 56m	0.31265	420.20	29°.7C	s 5.7980	29°.7C	—	—	—	Imamura	Sinzyō
,, ,, 15 6	0.31290	419.47	31.3	5.8010	31.3	—	—	—	,,	,,
,, ,, 15 15	0.31279	419.00	33.1	5.8052	33.1	—	—	—	Sinzyō	Imamura
Mean	0.31278									

316. KOKURA.

Play Ground of High Common School (高等小學校運動場)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 20th 13h 25m	4° 47′ 25″	Imamura	Sinzyō
,, ,, 13 56	,, 47 2	Sinzyō	Hattori
,, ,, 15 11	,, 44 49	Imamura	Sinzyō
,, ,, 16 20	,, 43 20	Sinzyō	Hattori
,, ,, 17 21	,, 43 6	Hattori	Sinzyō
,, ,, 17 34	,, 43 25	,,	,,
,, ,, 17 47	,, 44 6	Imamura	Imamura
,, ,, 21 58	,, 44 44	,,	,,
,, ,, 23 22	,, 43 32	,,	,,
,, 21st 2 4	,, 42 29	,,	,,
,, ,, 5 17	,, 41 6	,,	,,
,, ,, 6 17	,, 40 14	,,	,,
,, ,, 7 44	,, 40 2	Sinzyō	Hattori
,, ,, 9 6	,, 42 12	,,	,,
,, ,, 10 10	,, 44 22	Hattori	,,
,, ,, 11 5	,, 45 56	,,	Sinzyō
,, ,, 11 56	,, 48 31	Sinzyō	{ ,, Hattori
Mean	4° 43′ 26″		

$\delta = 4°\ 43'.43$

Reduction to 1895.0 = 0.71

,, ,, sea level = 0.00

$\delta = 4°\ 44'.1$

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 20th 15h 42m	1	48° 10.0	Sinzyō	{ Sinzyō Hattori
,, ,, 19 28	1	,, 11.3	Imamura	Imamura
,, 21st 5 43	1	,, 10.2	,,	,,
,, ,, 11 35	1	,, 10.4	Hattori	Sinzyō
Mean		48° 10.5		

$\theta = 48°\ 10'.5$

Reduction to 1895.0 = 5.58

,, ,, sea level = 0.00

$\theta = 48°\ 16'.1$

HORIZONTAL INTENSITY (*H*)
Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 20th 14h 57m	0.31249	418.81	34°.2C	5.8096 s	34°.3C	5°46′ 0″.0	13° 8′ 7″.5	34°.1 C	Imamura	Sinzyō
„ „ 18 6	0.31201	420.44	29.9	5.8036	30.3	5 47 46.3	13 11 42.5	29.5	{ Sinzyō Hattori	{ Hattori Sinzyō
„ 21st 8 44	0.31218	419.41	31.6	5.8039	30.2	5 46 21.3	13 8 56.3	33.0	{ „ Sinzyō	{ „ Sinzyō
Mean	0.31223									

$H=$ 0.31223
Reduction to 1895.0 = −4203
„ „ sea level = 000
$H=$ 0.31181

317. NAKATU.

Nakatu Park (中 津 公 園)

DECLINATION (δ)
Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)				δ			Observer	Recorder
Aug.	22nd	12h	36m	4°	29′	54″	Imamura	Hattori
„	„	13	16	„	29	34	Sinzyō	„
„	„	14	39	„	27	28	Hattori	Sinzyō
„	„	15	37	„	26	58	Imamura	Hattori
„	„	16	37	„	25	42	Sinzyō	Imamura
„	„	17	41	„	25	4	Imamura	Sinzyō
„	„	18	31	„	23	54	Sinzyō	Hattori
„	„	19	29	„	25	53	Hattori	„
„	„	19	50	„	26	0	„	„
„	„	21	27	„	26	30	„	„
„	„	23	30	„	26	20	„	„
„	23rd	0	39	„	26	3	„	„
„	„	3	23	„	25	53	„	„
„	„	4	56	„	25	37	„	„
„	„	5	55	„	23	54	„	„
„	„	6	59	„	22	45	„	„
„	„	8	14	„	23	25	Sinzyō	Imamura
„	„	9	16	„	25	28	„	„
„	„	10	23	„	28	48	Imamura	„
„	„	11	24	„	30	2	„	Hattori
„	„	12	8	„	30	58	Sinzyō	„
„	„	12	35	„	31	23	„	„
„	„	14	11	„	30	14	„	Imamura
Mean				4	26′	20″		

δ=4° 26′.33
Reduction to 1895.0 = 0.71
„ „ sea level = 0.00
δ=4° 27′.0

DIP (θ)
Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 22nd 15h 16m	1	47° 51′.9	Imamura	Sinzyō
„ „ 16 53	1	„ 55.0	Sinzyō	Imamura
„ 23rd 6 34	1	„ 54.0	Hattori	Hattori
Mean		47° 53′.6		

θ=47° 53′.6
Reduction to 1895.0 = 4.92
„ „ sea level = 0.00
θ=47° 58′.5

HORIZONTAL INTENSITY (*H*)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	*H*	*M*	Mean Temp.	Time of 1-Vib^n.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 22nd 14h 17m	0.31235	418.85	32°.7C	5.8106 s	32°.8C	5°46′20″.0	13° 9′ 5″.0	32°.6C	Hattori Sinzyō	Imamura ,,
,, ,, 18 6	0.31162	420.22	28.4	5.8080	28.7	5 48 27.5	13 14 1.3	28.2	Imamura ,,	Sinzyō ,,
,, 23rd 8 53	0.31149	421.33	25.6	5.8005	25.5	5 49 17.5	13 15 41.3	25.7	Sinzyō	Imamura
Mean	0.31182									

H= 0.31182
Reduction to 1895.0= −4102
,, ,, sea level= 000
H= 0.31141

318. NAKAMATAMA.

Hamanisi (中眞玉村字濱西原野)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time)	δ	Observer	Recorder
Aug. 24th 18h 13m	4° 25′ 28″	Sinzyō	Hattori
,, ,, 18 55	,, 25 37	Hattori	,,
,, ,, 19 39	,, 25 31	Sinzyō	Sinzyō
,, ,, 20 59	,, 25 18	,,	Hattori
,, ,, 21 58	,, 25 26	,,	,,
,, ,, 23 0	,, 25 41	,,	,,
,, 25th 0 53	,, 24 46	,,	Sinzyō
,, ,, 3 37	,, 23 57	Hattori	Hattori
,, ,, 5 56	,, 21 58	Sinzyō	Sinzyō
,, ,, 6 21	,, 21 4	,,	,,
,, ,, 7 10	,, 20 34	,,	Hattori
,, ,, 8 33	,, 24 13	,,	Sinzyō
,, ,, 8 46	,, 24 44	,,	,,
,, ,, 9 51	,, 27 56	Hattori	,,
,, ,, 10 46	,, 29 53	Sinzyō	Hattori
,, ,, 11 41	,, 29 57	Hattori	Sinzyō
,, ,, 12 45	,, 30 9	Sinzyō	Hattori
,, ,, 14 7	,, 28 49	Hattori	Sinzyō
,, ,, 15 8	,, 27 56	Sinzyō	Hattori
,, ,, 16 5	,, 26 47	,,	,,
,, ,, 16 49	,, 26 34	,,	Sinzyō
Mean	4° 25′ 43″		

δ=4° 25′.72
Reduction to 1895.0= 0.54
,, ,, sea level= 0.00
δ=4° 26′.3

DIP. (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 25th 6h 56m	1	47° 46′.3	Sinzyō	Hattori
,, ,, 10 24	1	,, 45.7	Hattori Sinzyō	,, Sinzyō
,, ,, 14 42	1	,, 46.9	Hattori	,,
Mean		47° 46′.3		

θ=47° 46′.3
Reduction to 1895.0= 4.79
,, ,, sea level= 0.00
θ=47° 51′.1

HORIZONTAL INTENSITY (H)
Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vibn.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 24th 21h 35m	0.31215	421.18	24°.6C	s 5.7969	25°.1C	5°48′53″.8	13°15′10″.0	24°.2C	Sinzyō / Hattori	Hattori / Sinzyō
,, 25th 8 13	0.31142	420.10	27.4	5.8102	27.4	5 48 27.5	13 13 56.3	27.4	,, / Sinzyō	,, / Hattori
,, ,, 13 22	0.31271	417.79	36.0	5.8183	37.3	5 45 30.0	13 7 15.0	34.8	,,	,,
,, ,, 13 51	0.31273	417.19	37.9	5.8200	38.3	5 44 36.3	13 5 11.3	37.5	Hattori	Sinzyō
Mean	0.31225									

H= 0.31225
Reduction to 1895.0= −3973
,, ,, sea level= 0.00
H= 0.31185

319. KUMA.

Bank of the Tikugogawa (日田隈町筑後河々原)

DECLINATION (δ)
Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 27th 11h 31m	4° 36′ 26″	Sinzyō	Sinzyō
,, ,, 11 56	,, 37 9	,,	Hattori
,, ,, 13 3	,, 37 6	Hattori	Sinzyō
,, ,, 14 6	,, 35 35	,,	Hattori
,, ,, 15 37	,, 34 20	,,	Sinzyō
,, ,, 16 30	,, 33 30	Sinzyō	Hattori
,, ,, 17 39	,, 33 30	,,	Sinzyō
,, ,, 18 25	,, 33 26	,,	,,
,, ,, 19 15	,, 33 41	,,	Hattori
,, ,, 21 59	,, 34 15	Hattori	,,
,, ,, 23 4	,, 34 31	,,	Sinzyō
,, ,, 23 18	,, 34 36	,,	,,
,, 28th 0 43	,, 34 24	Sinzyō	,,
,, ,, 1 56	,, 34 0	,,	,,
,, ,, 3 34	,, 33 56	,,	,,
,, ,, 5 21	,, 33 15	Hattori	Hattori
,, ,, 6 22	,, 31 11	Sinzyō	,,
,, ,, 7 3	,, 30 7	,,	,,
,, ,, 7 59	,, 29 36	,,	Sinzyō
,, ,, 8 53	,, 32 37	Hattori	Hattori
,, ,, 9 17	,, 34 7	Sinzyō	Sinzyō
,, ,, 9 40	,, 35 31	,,	,,
Mean	4° 34′ 16″		

δ=4° 34′.27
Reduction to 1895.0= 1.04
,, ,, sea level= −0.01
δ=4° 35′.3

DIP (θ)
Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 27th 16h 16m	1	46° 54′.8	Sinzyō	Hattori
,, ,, 23 53	1	,, 53.5	,,	Sinzyō
,, 28th 8 32	1	,, 55.1	Hattori	Hattori
Mean		46° 54′.4		

θ=46° 54′.4
Reduction to 1895.0= 4.96
,, ,, sea level= −0.02
θ=46° 59′.3

HORIZONTAL INTENSITY (*H*)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^{n}.	Temp. t_v	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 27th 13h 28m	0.31336	416.07	39°.6C	5.8264 s	41°.5C	5°43′20″.0	13 1′56″.3	37°.7C	Sinzyō	Hattori
,, ,, 14 41	0.31336	415.83	40.1	5.8264	41.5	5 42 57.5	13 1 8.8	38.8	,,	,,
,, ,, 15 13	0.31323	415.64	41.0	5.8291	41.5	5 43 5.0	13 1 38.8	38.6	Hattori	Sinzyō
,, ,, 20 15	0.31307	420.71	25.7	5.7887	25.1	5 46 50.0	13 10 1.3	26.4	Sinzyō	Hattori
,, ,, 21 28	0.31319	420.74	24.8	5.7900	25.1	5 47 12.5	13 11 3.8	24.6	Hattori	Sinzyō
,, 28th 6 48	0.31310	420.99	24.6	5.7870	24.2	5 47 10.0	13 10 52.5	25.0	,, Sinzyō	,, Hattori
Mean	0.31322									

$H = 0.31322$

Reduction to 1895.0 = −4219

,, ,, sea level = 100

$H = 0.31281$

320. KARATU.

Site of Daisyōin (唐津西ノ濱舊大聖院跡)

DECLINATION (δ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	δ	Observer	Recorder
Aug. 29th 17h 6m	4° 18′ 41″	Sinzyō	Hattori
,, ,, 17 30	,, 17 57	,,	,,
,, ,, 18 56	,, 17 56	,,	,,
,, ,, 19 14	,, 17 41	,,	Sinzyō
,, ,, 20 25	,, 17 50	,,	,,
,, ,, 21 46	,, 17 41	,,	,,
,, ,, 23 39	,, 17 30	,,	,,
,, 30th 1 2	,, 17 29	Hattori	Hattori
,, ,, 3 12	,, 15 11	Sinzyō	Sinzyō
,, ,, 3 38	,, 14 54	,,	,,
,, ,, 4 30	,, 14 31	,,	Hattori
,, ,, 6 36	,, 13 50	Hattori	,,
,, ,, 7 42	,, 12 7	Sinzyō	,,
,, ,, 8 39	,, 13 9	Hattori	,,
,, ,, 9 2	,, 16 16	,,	,,
,, ,, 10 8	,, 17 30	Sinzyō	,,
,, ,, 10 37	,, 18 14	,,	,,
,, ,, 11 37	,, 20 20	,,	,,
,, ,, 12 34	,, 22 12	,,	Sinzyō
,, ,, 13 19	,, 21 34	,,	Hattori
,, ,, 13 30	,, 21 32	,,	,,
,, ,, 15 2	,, 18 57	Hattori	Sinzyō
,, ,, 15 41	,, 18 5	Sinzyō	Hattori
,, ,, 16 39	,, 17 49	,,	,,
,, ,, 17 9	,, 17 50	,,	,,
,, ,, 17 31	,, 17 30	,,	,,
,, ,, 17 59	,, 17 29	,,	,,
Mean	4° 17′ 22″		

δ = 4° 17′.37

Reduction to 1895.0 = 1.46

,, ,, sea level = 0.00

δ = 4° 18′.8

DIP (θ)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	Needle No.	θ	Observer	Recorder
Aug. 30th 4h 13m	1	47° 46!2	Sinzyō	Hattori
„ „ 11 18	1	„ 47.7	Hattori	Sinzyō
„ „ 13 6	1	„ 49.5	Sinzyō	„
Mean		47° 47!8		

$\theta = 47° \quad 47!8$

Reduction to 1895.0 = 6.35

„ „ sea level = 0.00

$\theta = 47° \quad 54!2$

HORIZONTAL INTENSITY. (H)

Observations of the South West Party, 1896.

Date and Hour (Mean Local Time.)	H	M	Mean Temp.	Time of 1-Vib^n.	Temp. t_V	Mean Deflections φ_1	Mean Deflections φ_2	Temp. t_D	Observer	Recorder
Aug. 29th 20h 3m	0.31299	420.49	26°.3C	5.7941	26°.8C	5°47′ 8″.7	13°10′46″.3	25°.9C	Hattori / Sinzyō	Sinzyō / Hattori
„ 30th 7 28	0.31363	421.43	27.2	5.7785	26.6	5 46 45.0	13 9 48.8	27.8	Hattori / Sinzyō	Sinzyō / Hattori
„ „ 14 31	0.31346	419.54	28.8	5.7976	29.6	5 46 16.3	13 9 20.0	27.9	„ / Hattori	„ / Sinzyō
Mean	0.31336									

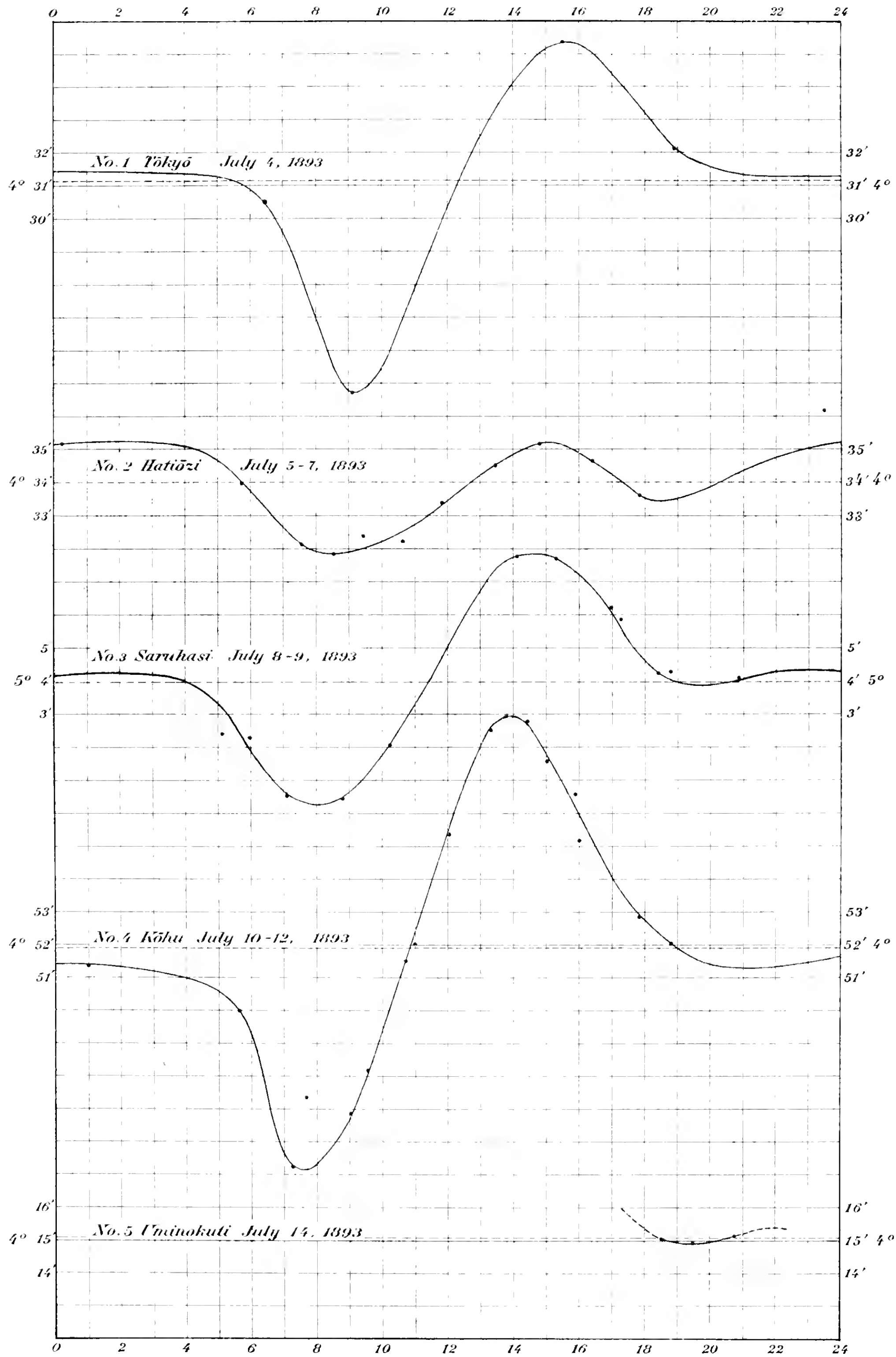
$H = 0.31336$

Reduction to 1895.0 = − 4625

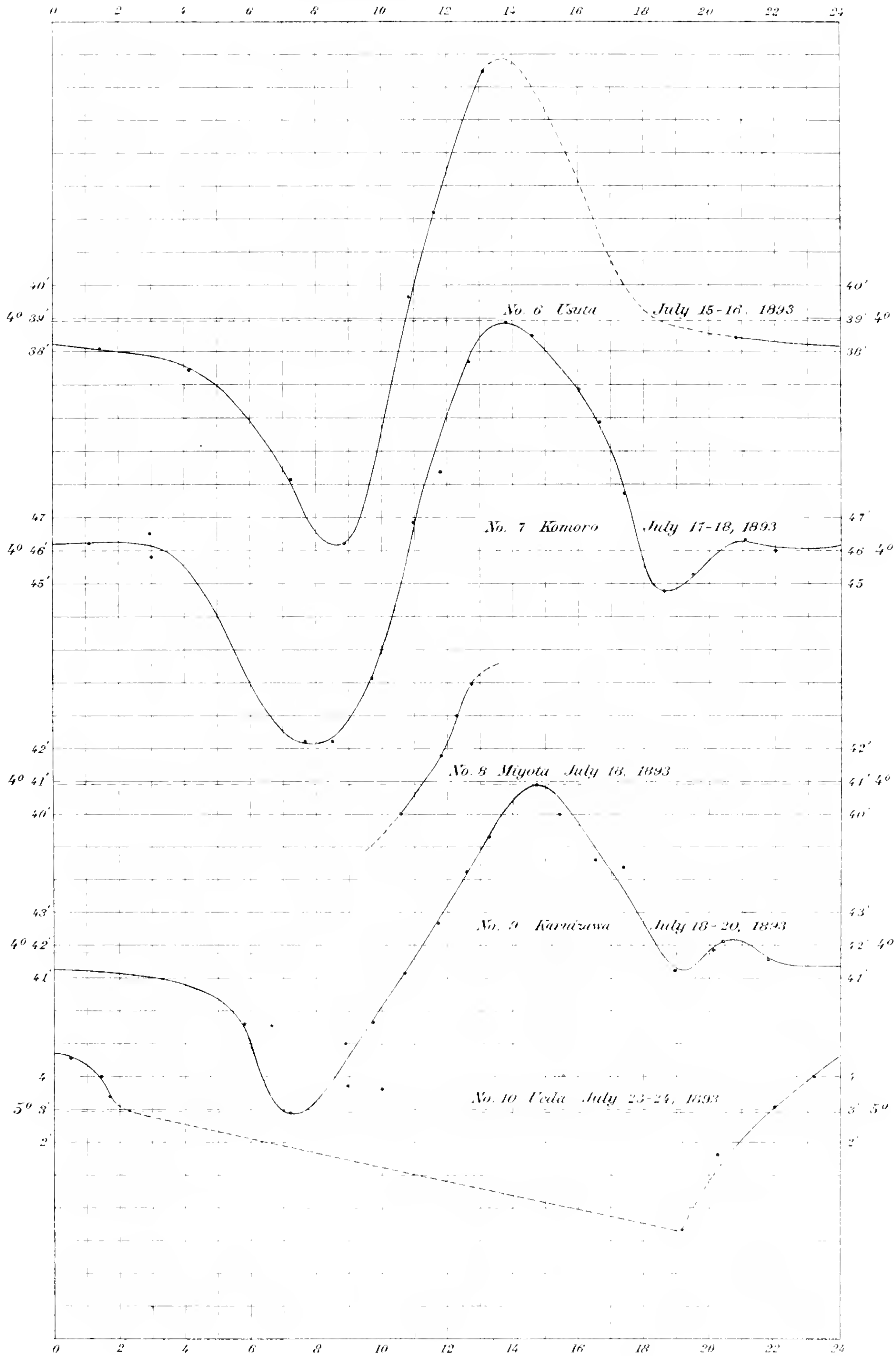
„ „ sea level = 000

$H = 0.31290$

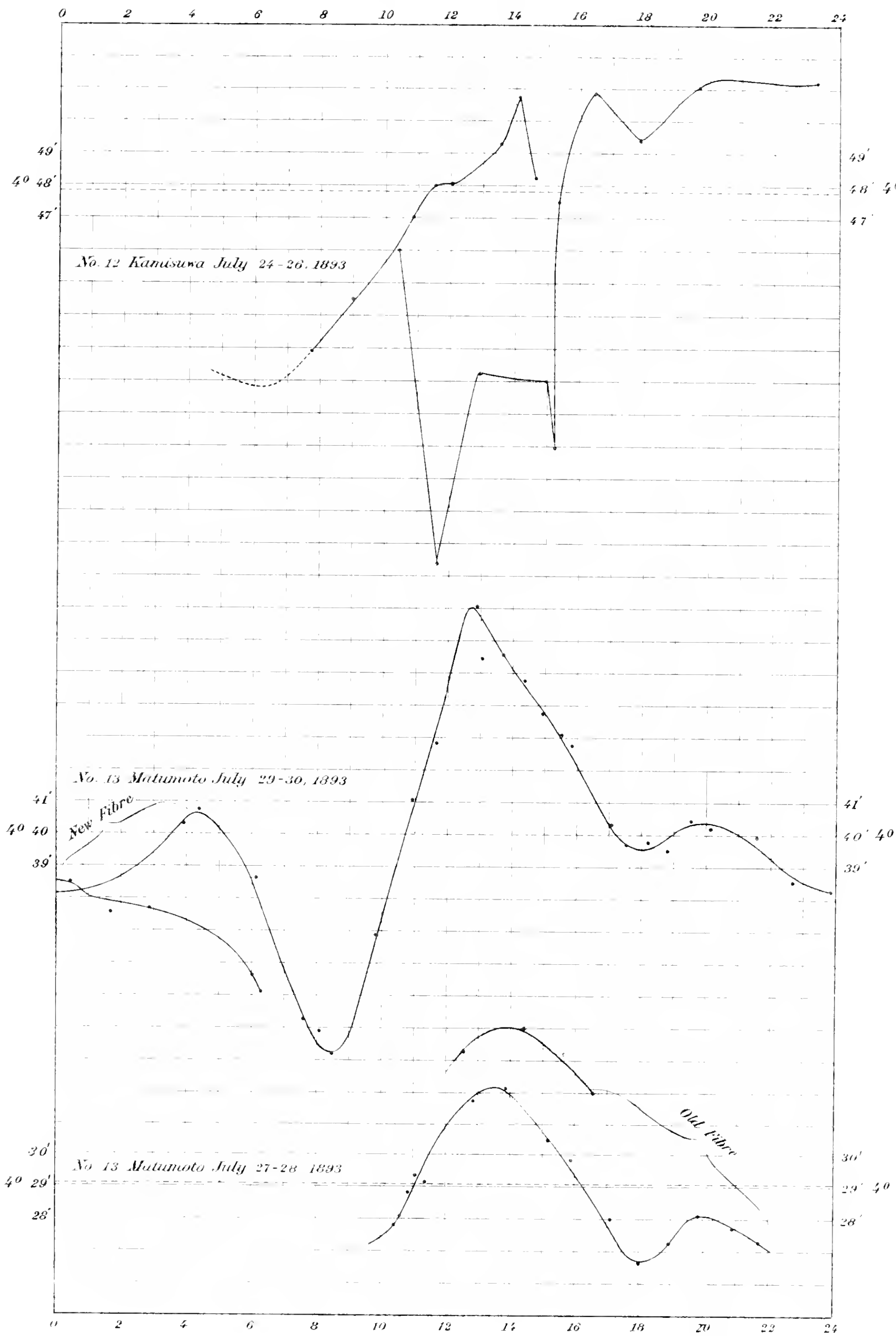
Observations of 1893 (East Party)



Observations of 1893 (East Party)



Observations of 1893 (East Party)



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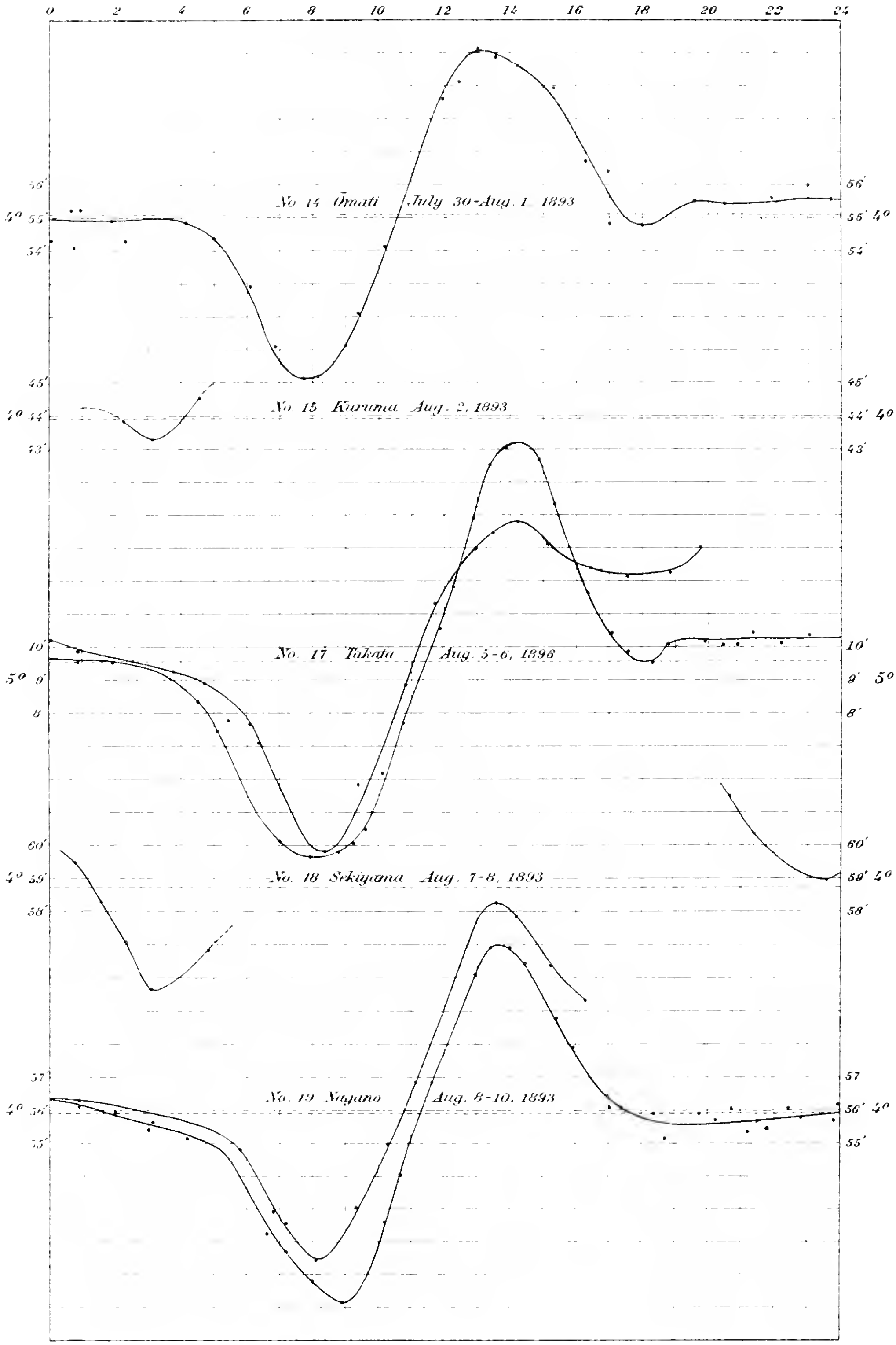
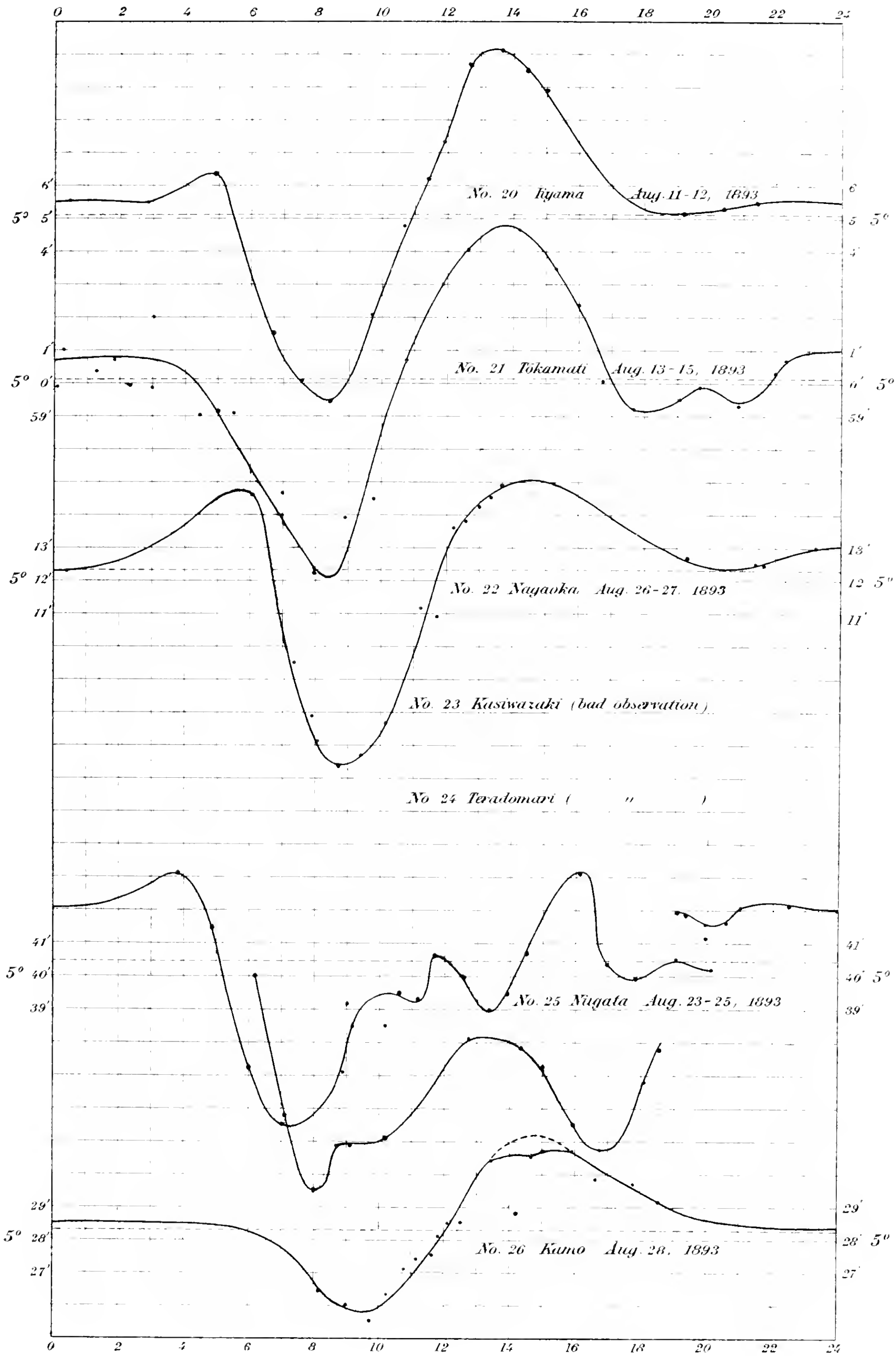


Observations of 1893 (East Party)



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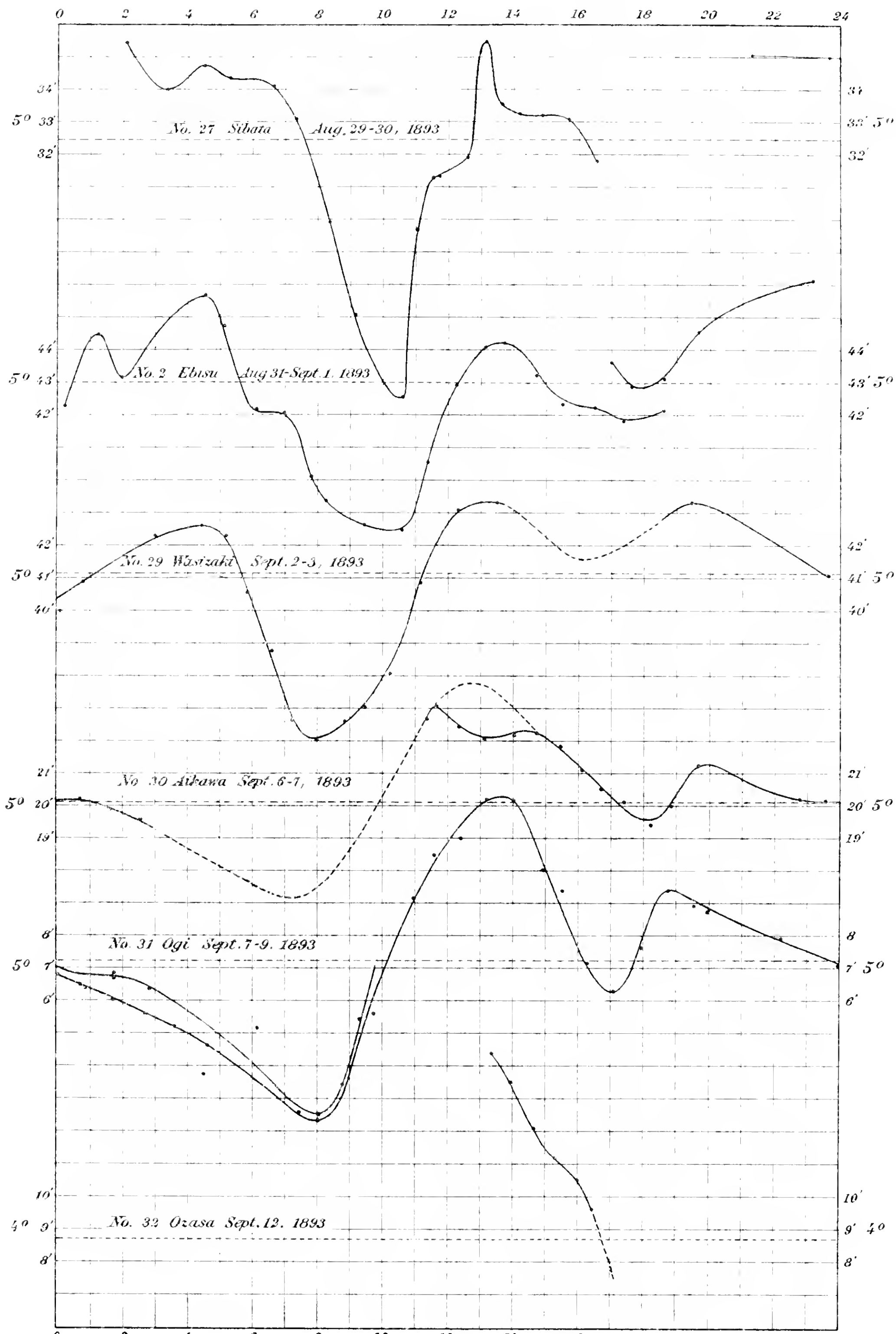
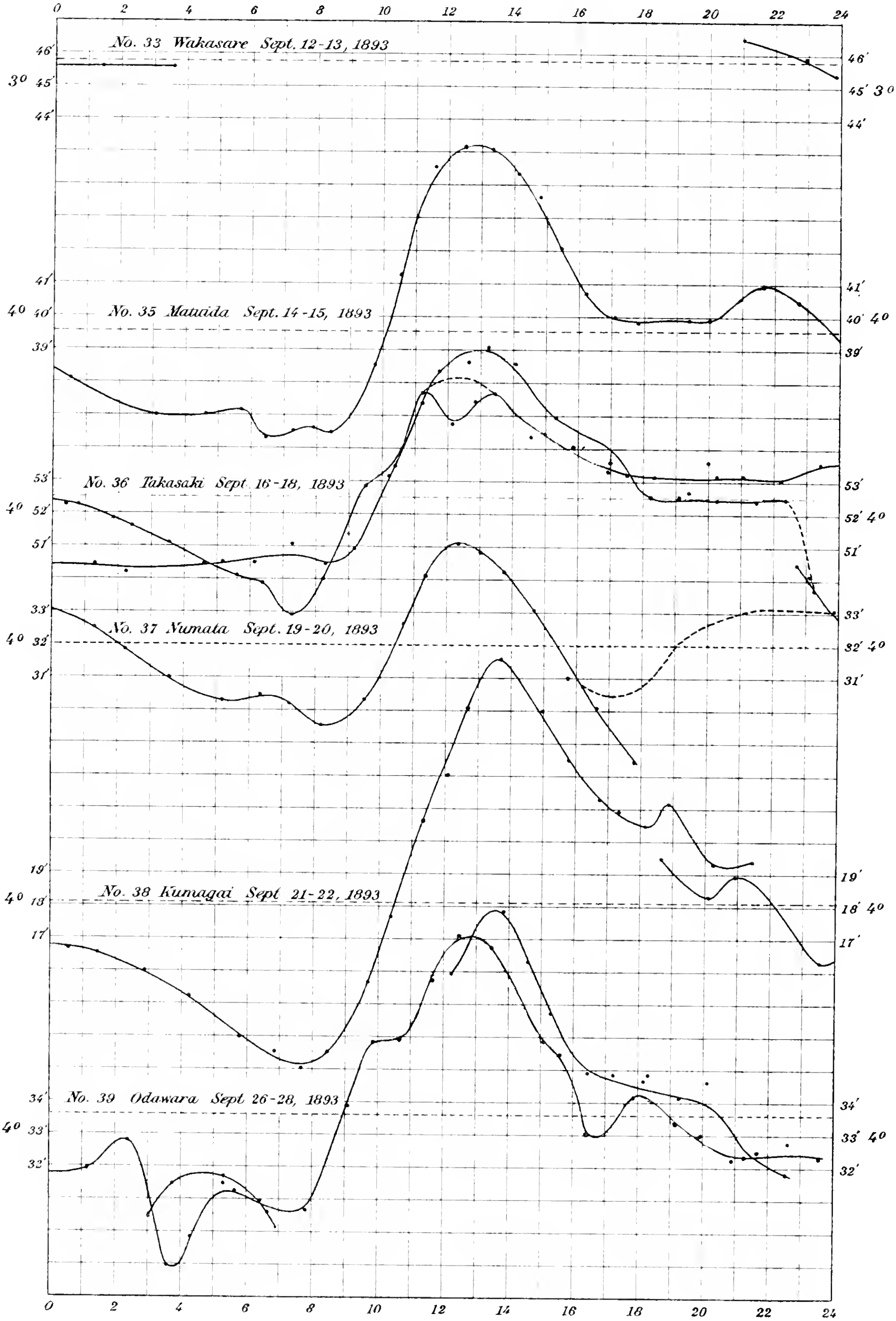
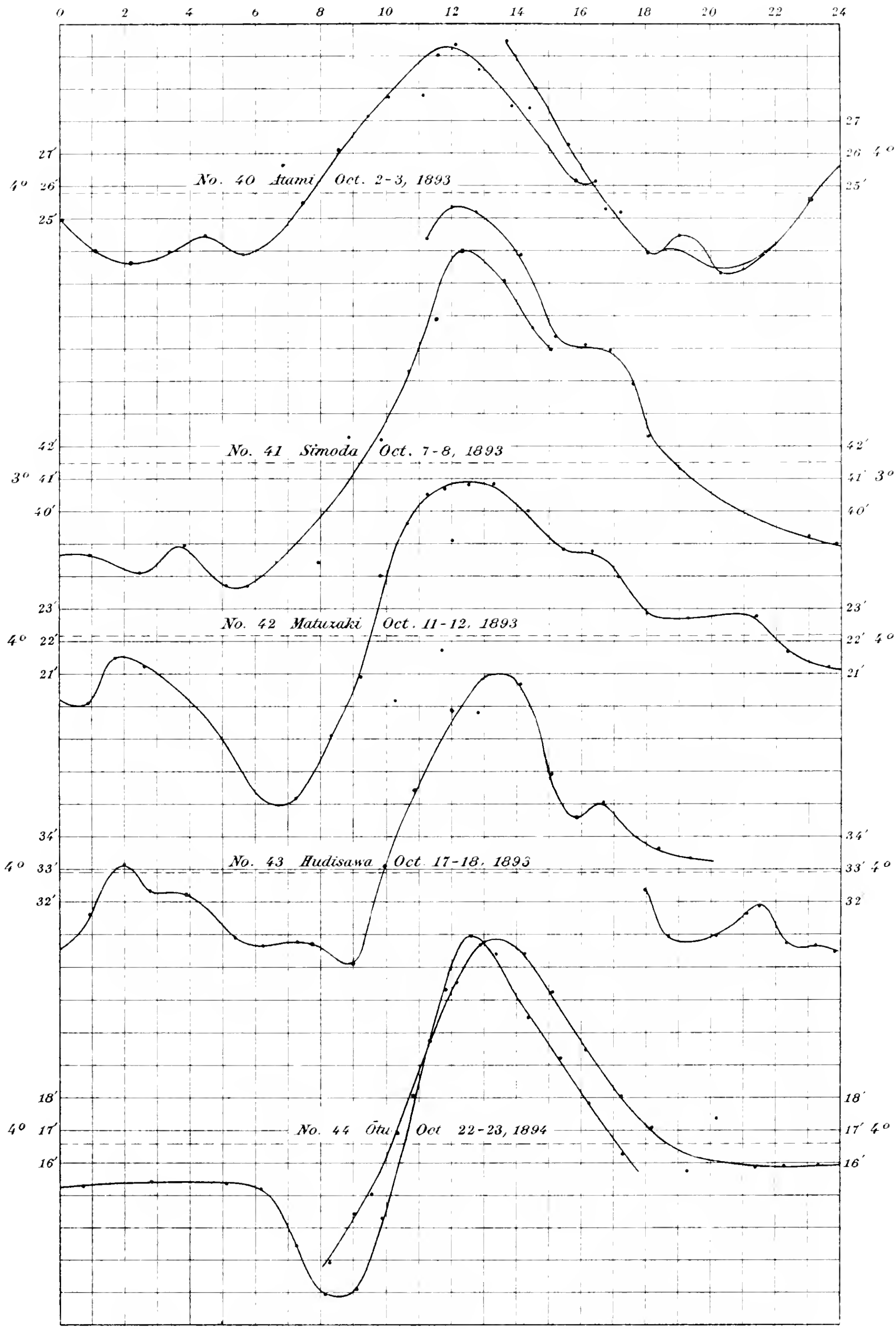


Observations of 1893 (East Party)



Observations of 1893 (East Party)



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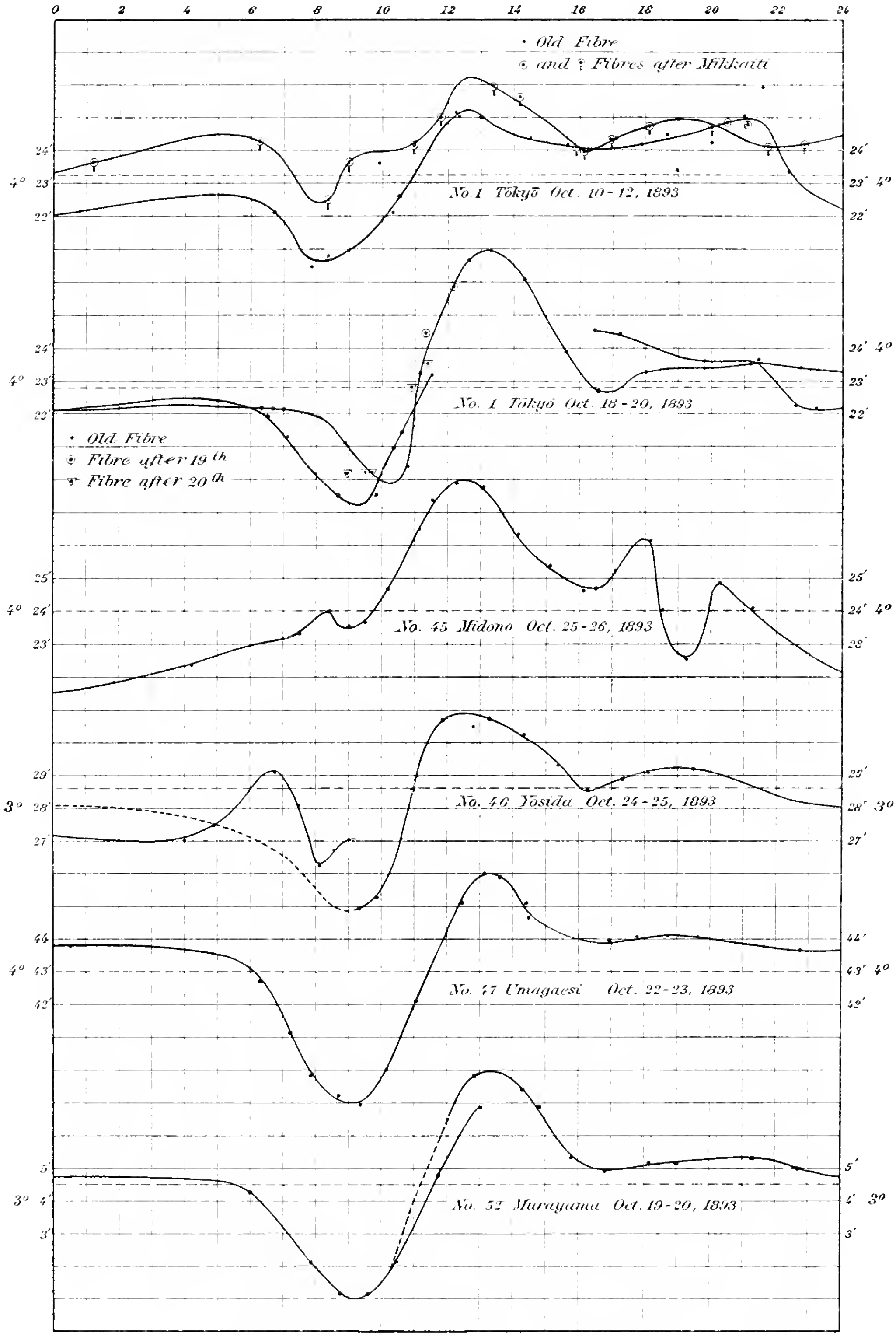

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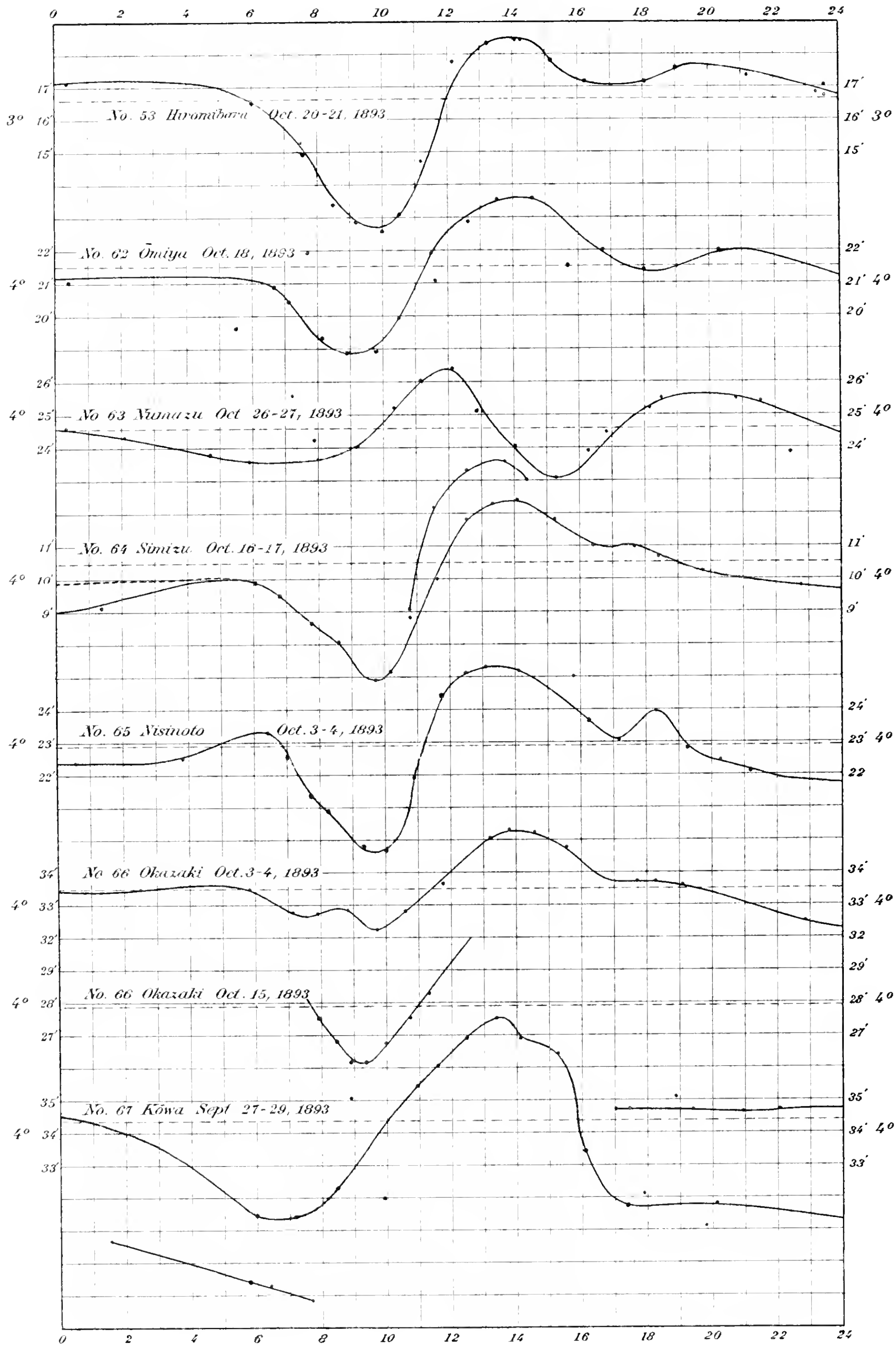
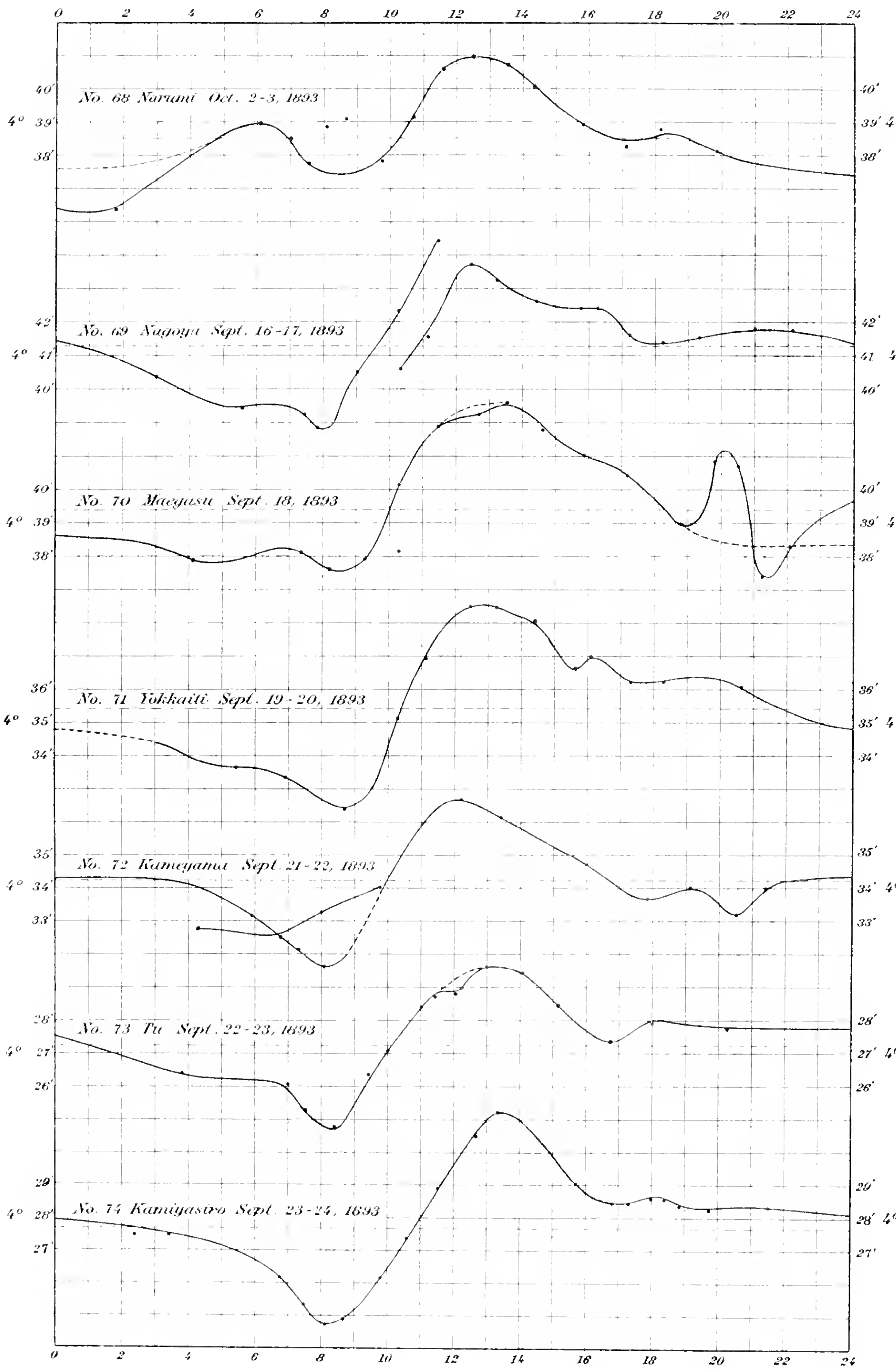


Observations of 1893 (West Party)



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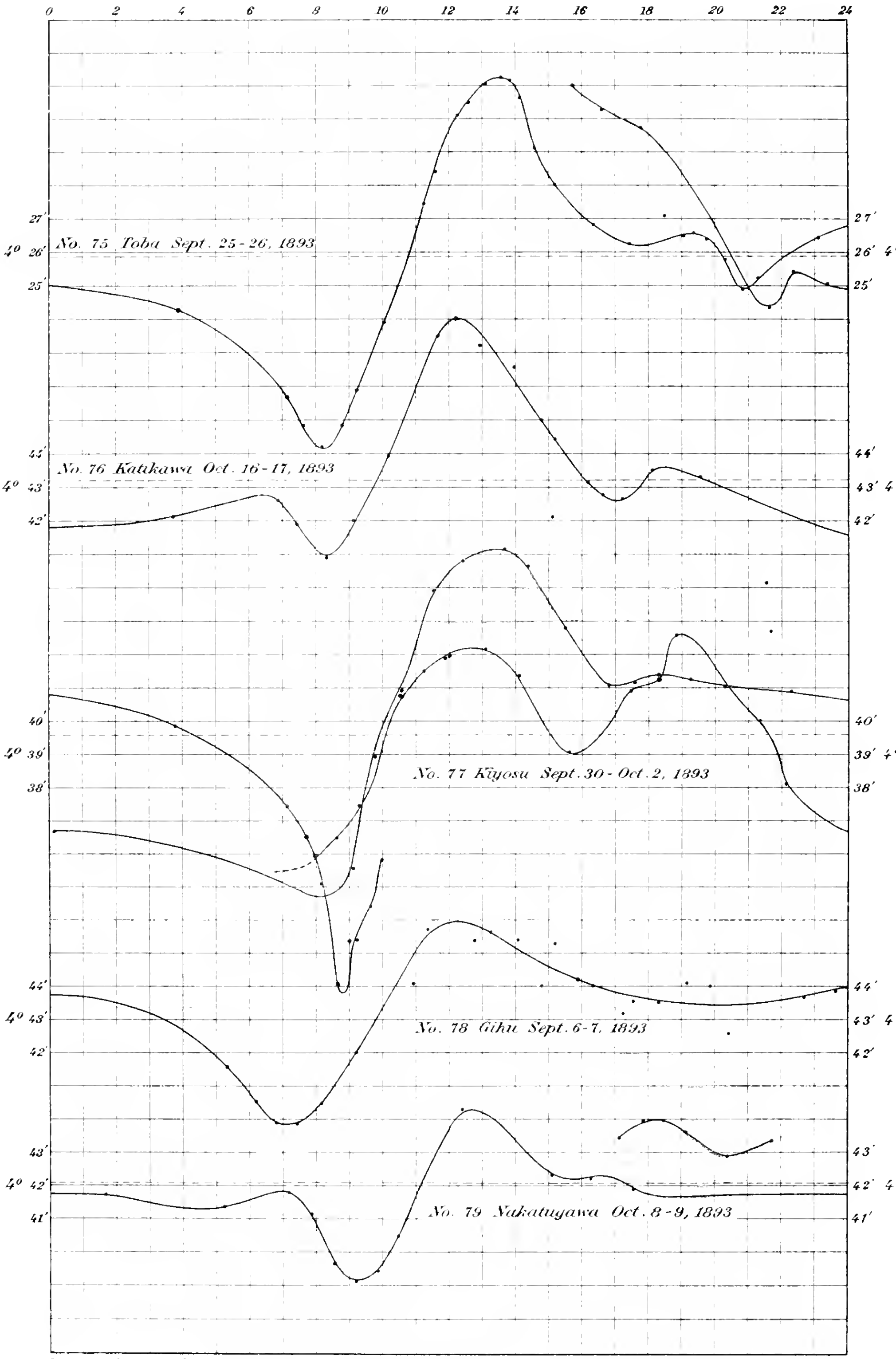
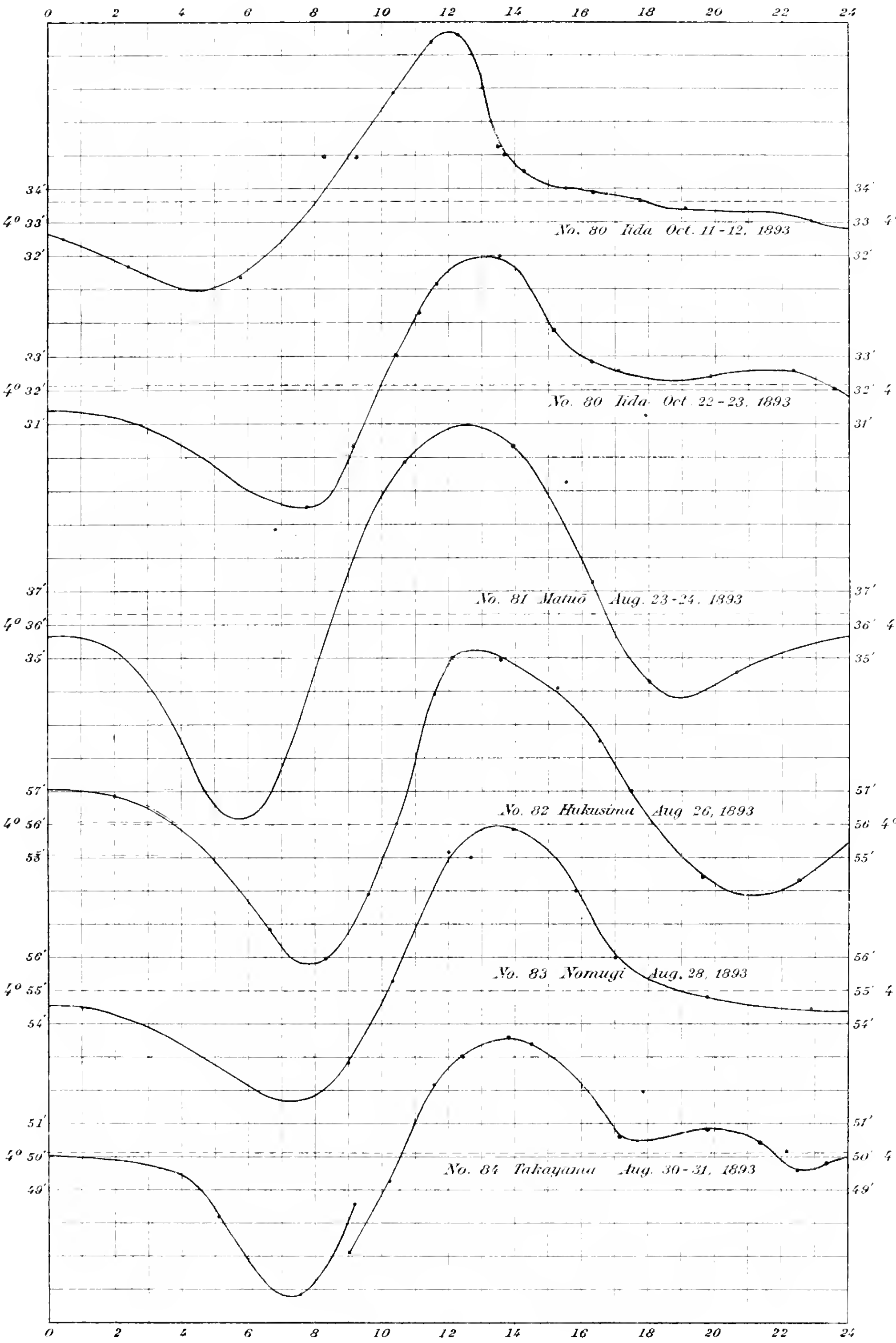
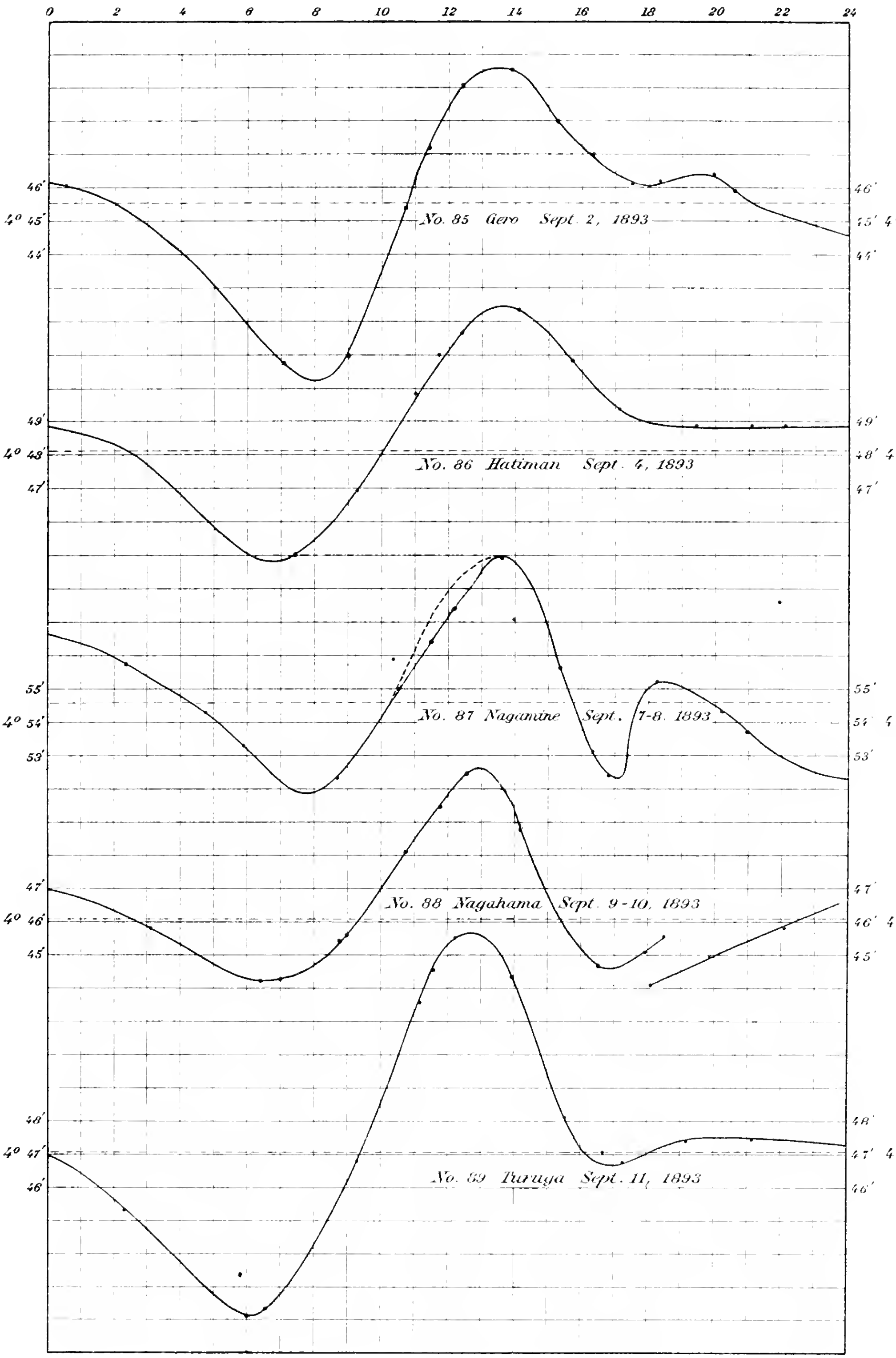
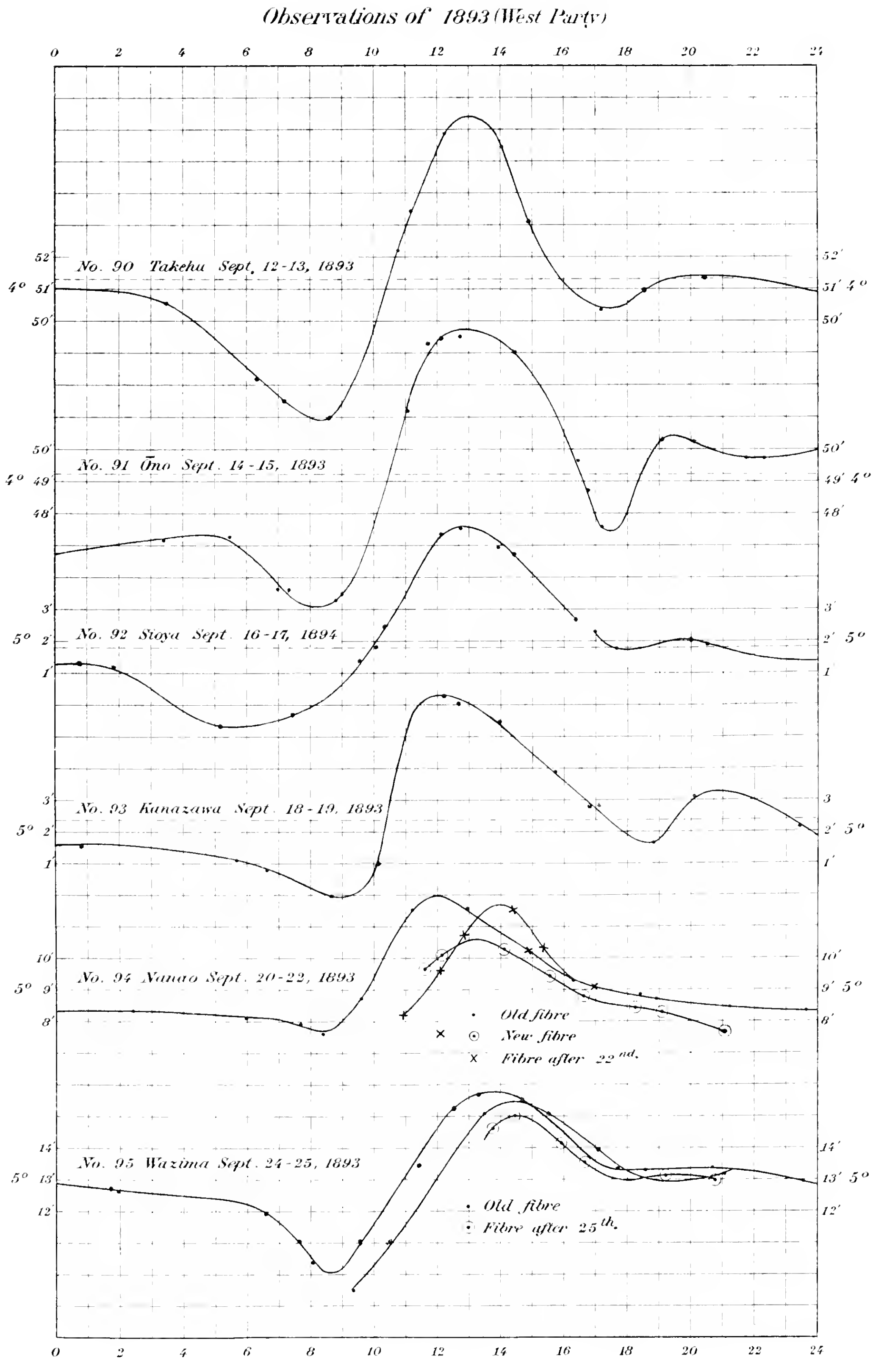


Observations of 1893 (West Party)

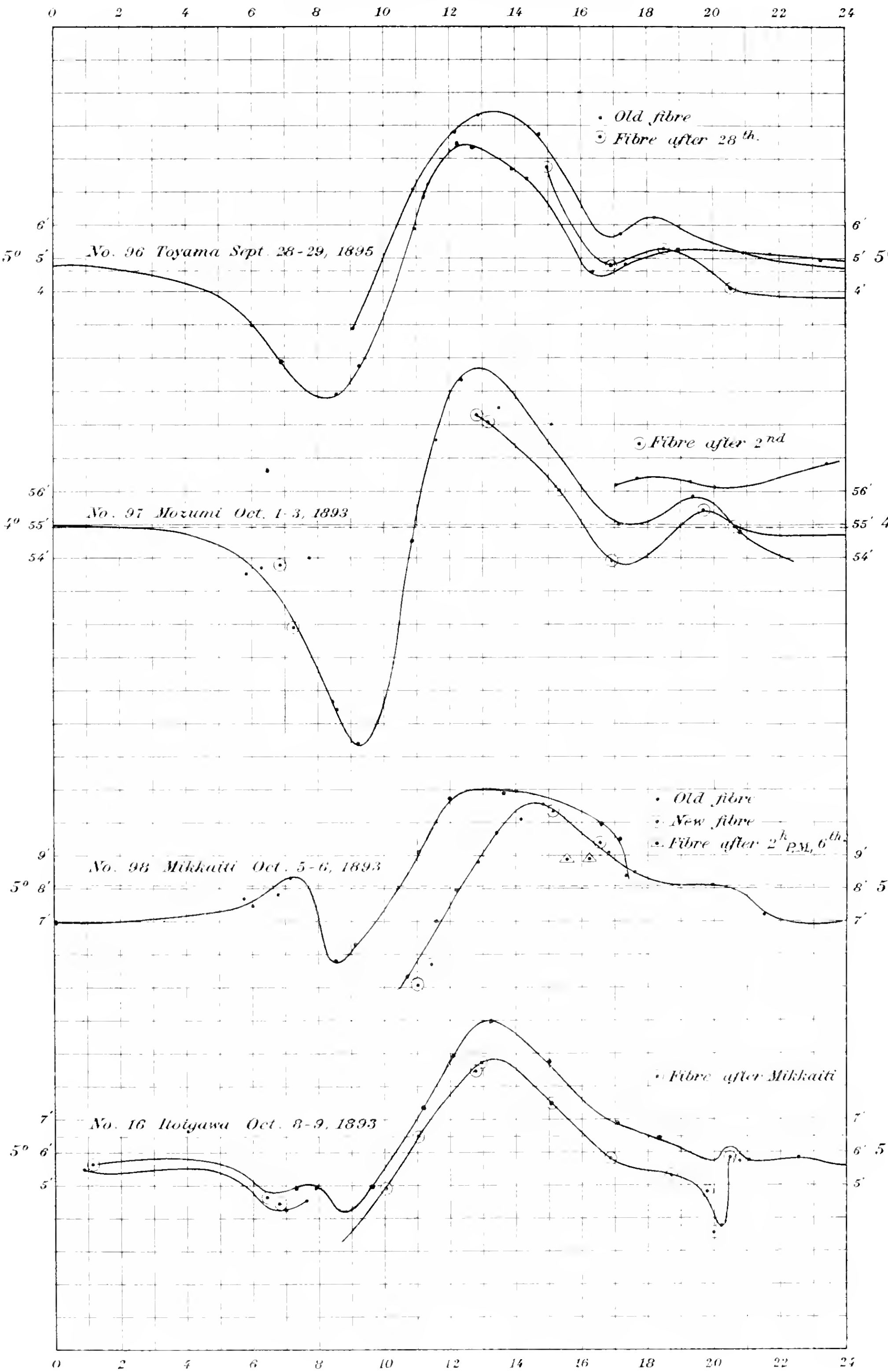


Observations of 1893 (West Party)

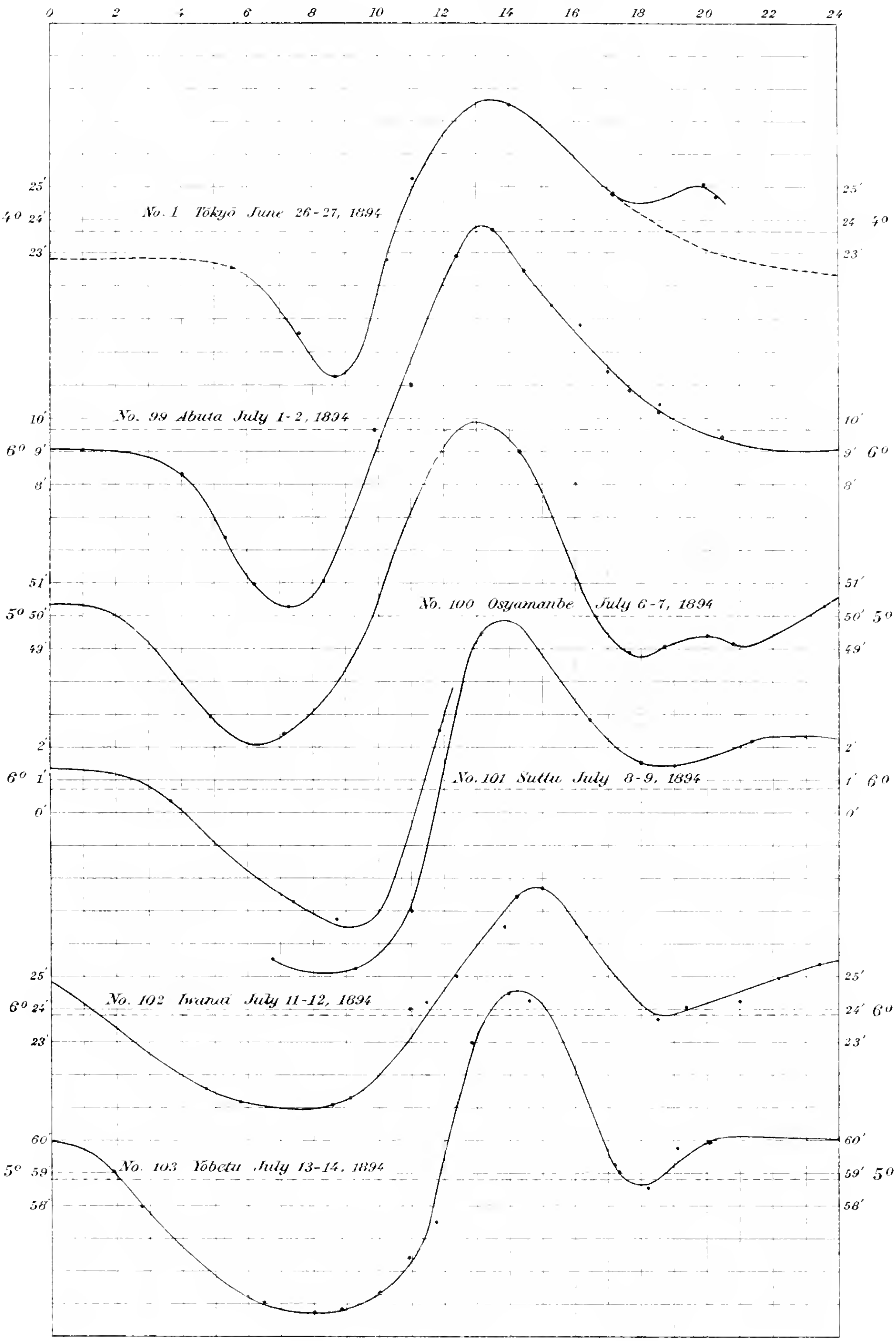



Observations of 1893 (West Party)
No. 90 Takehu Sept. 12-13, 1893
No. 91 Ōno Sept. 14-15, 1893
No. 92 Stoya Sept. 16-17, 1894
No. 93 Kanazawa Sept. 18-19, 1893
No. 94 Nanao Sept. 20-22, 1893
Old fibre
New fibre
Fibre after 22nd.
No. 95 Wazima Sept. 24-25, 1893
Old fibre
Fibre after 25th.

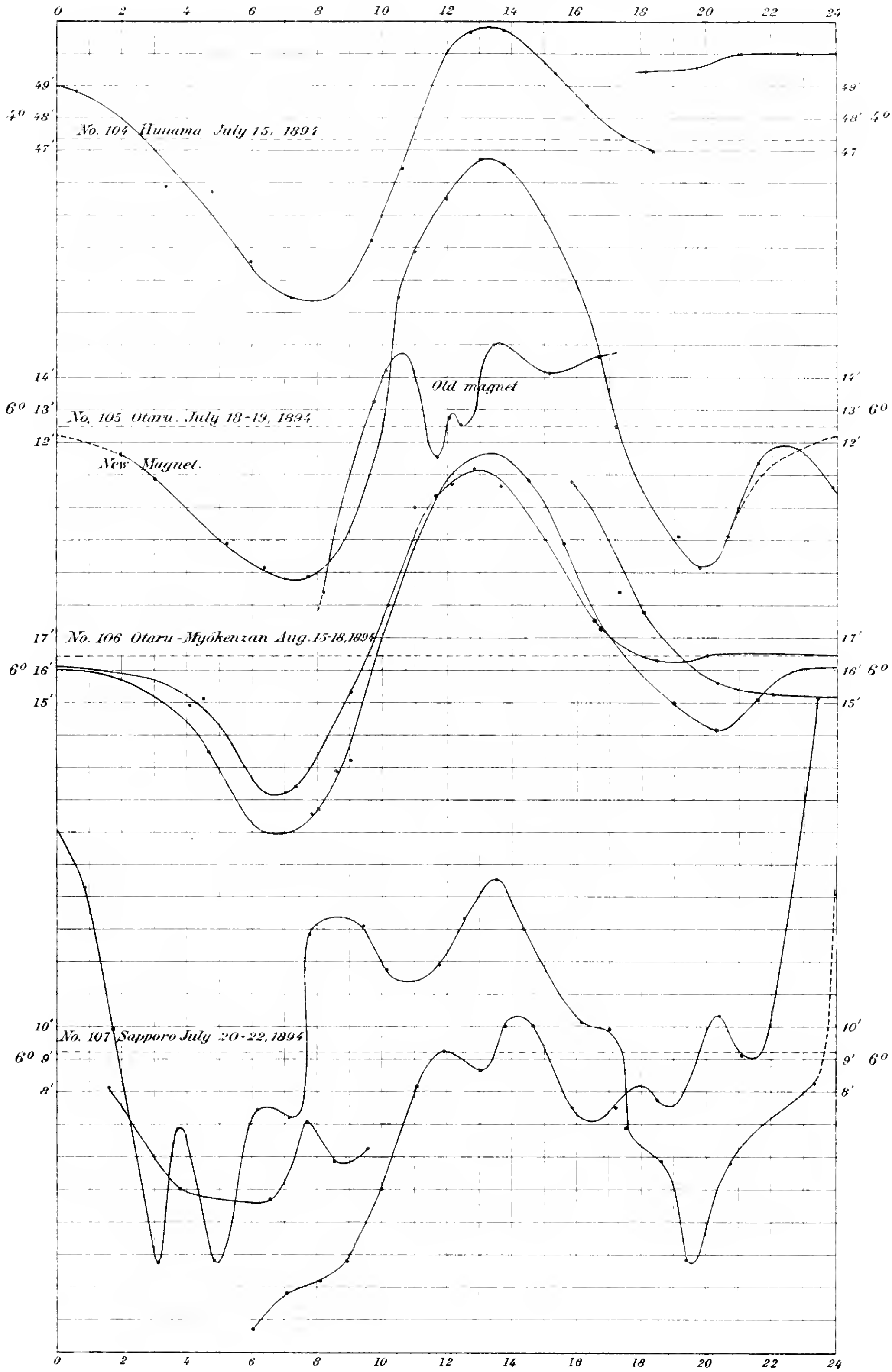
Observations of 1893 (West Party)



Observations of 1894 (North Party)



Observations of 1894 (North Party)



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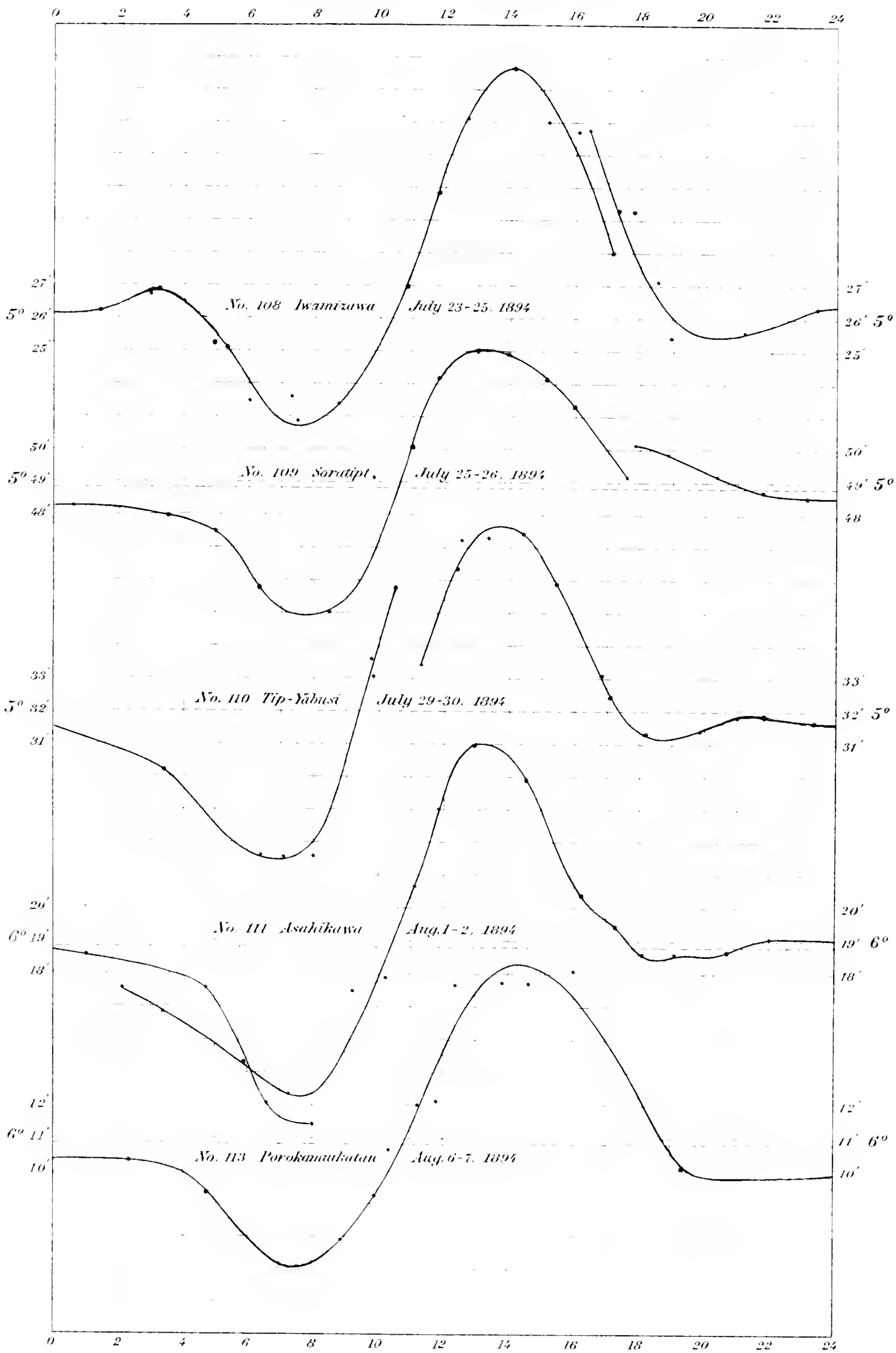

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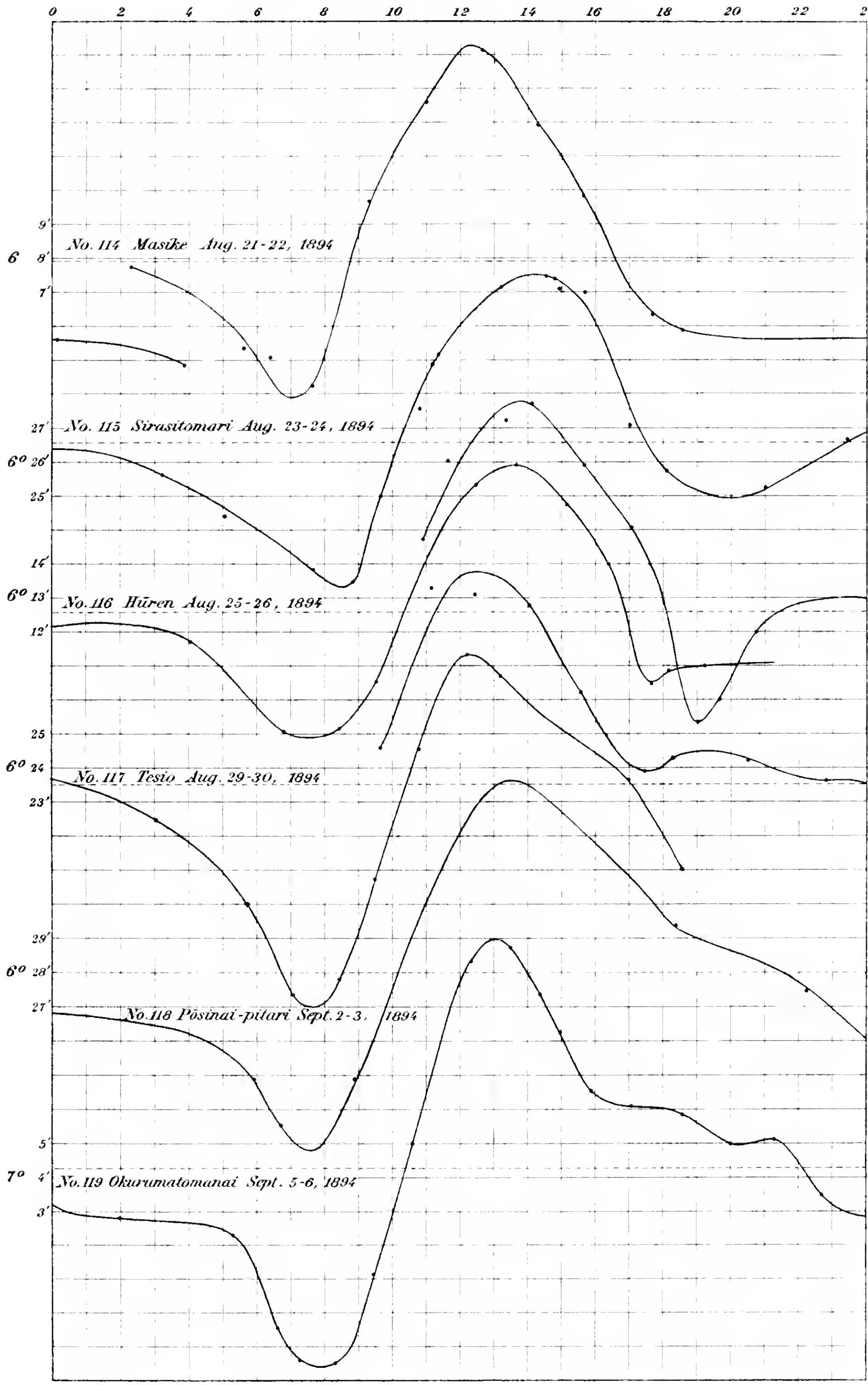
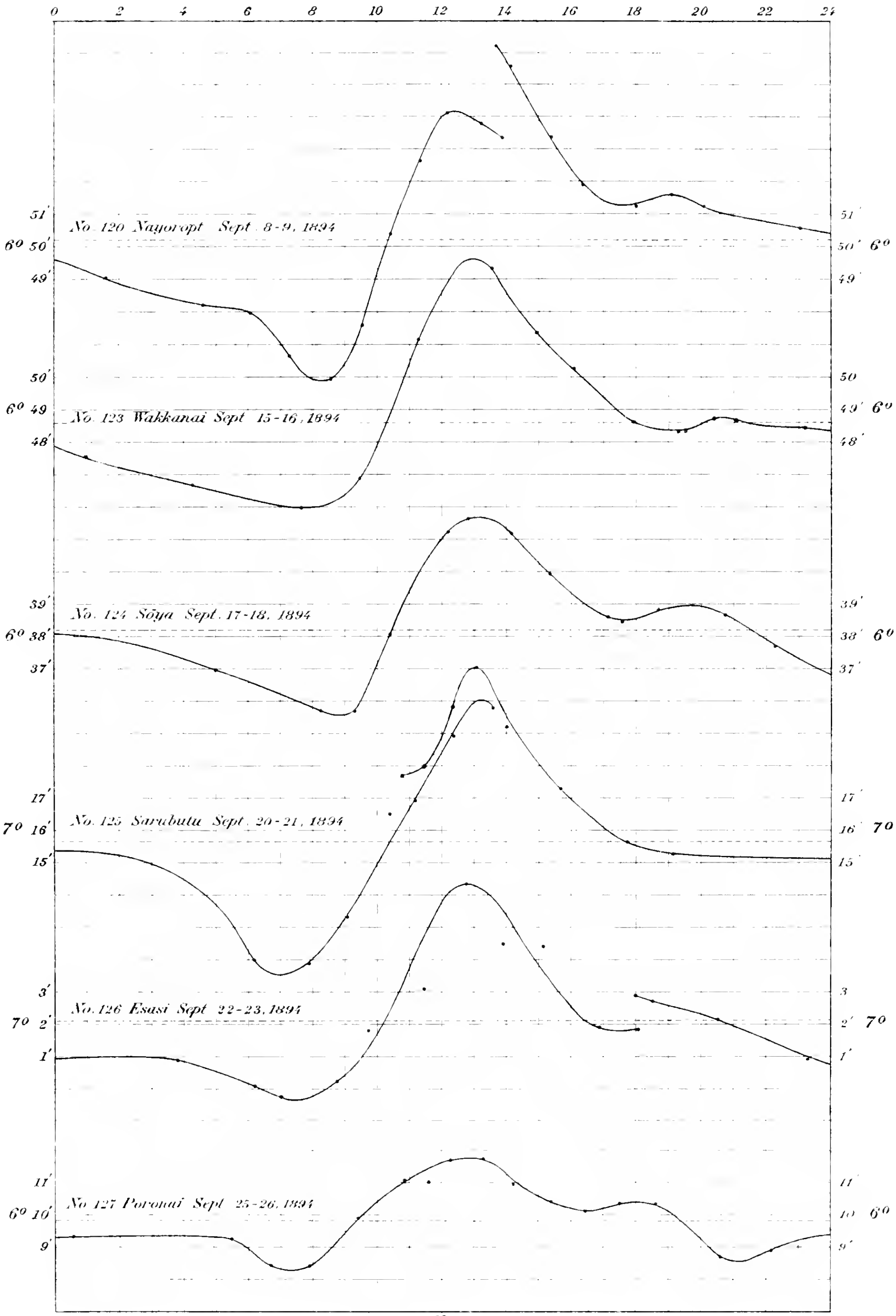
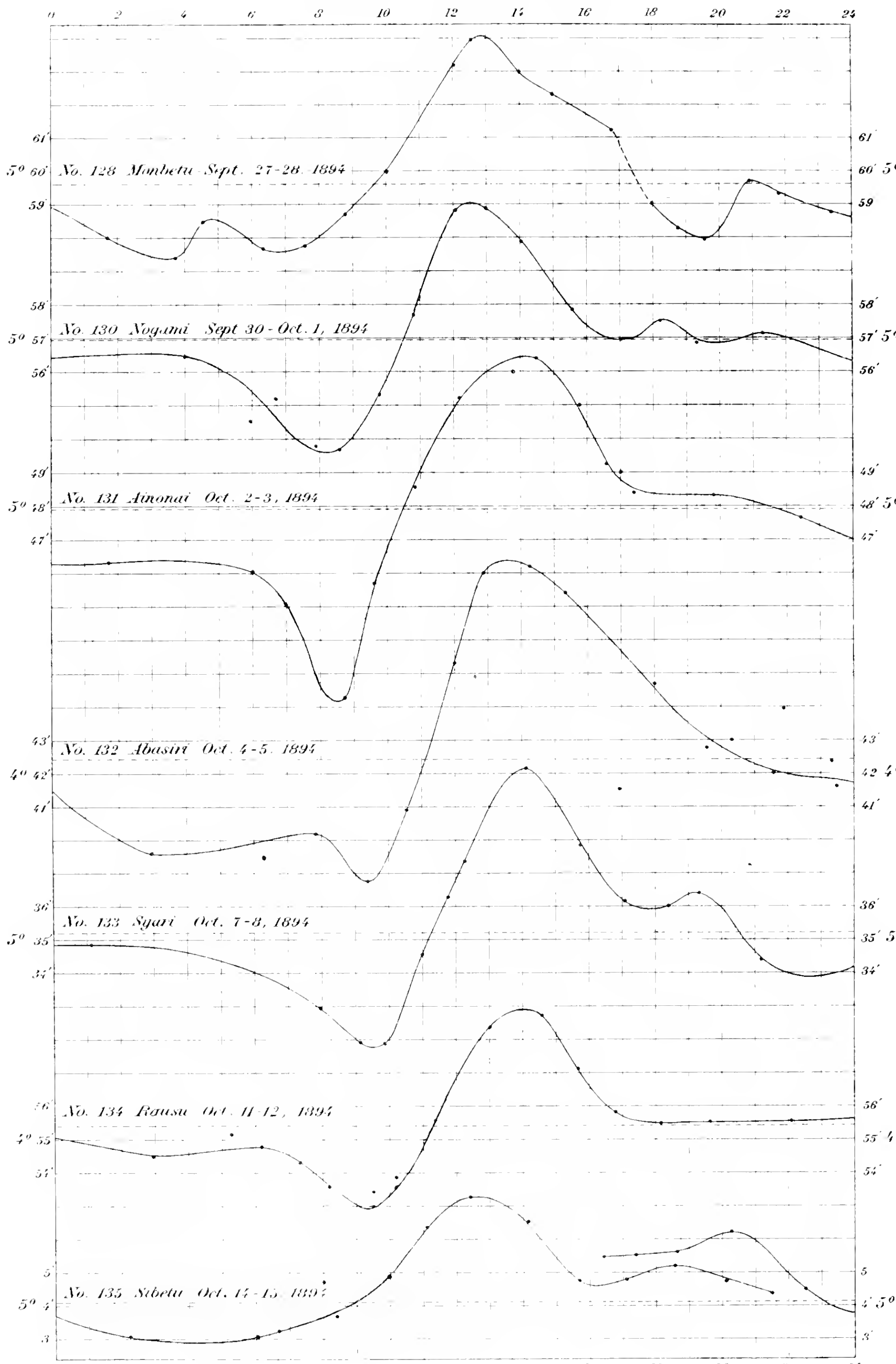


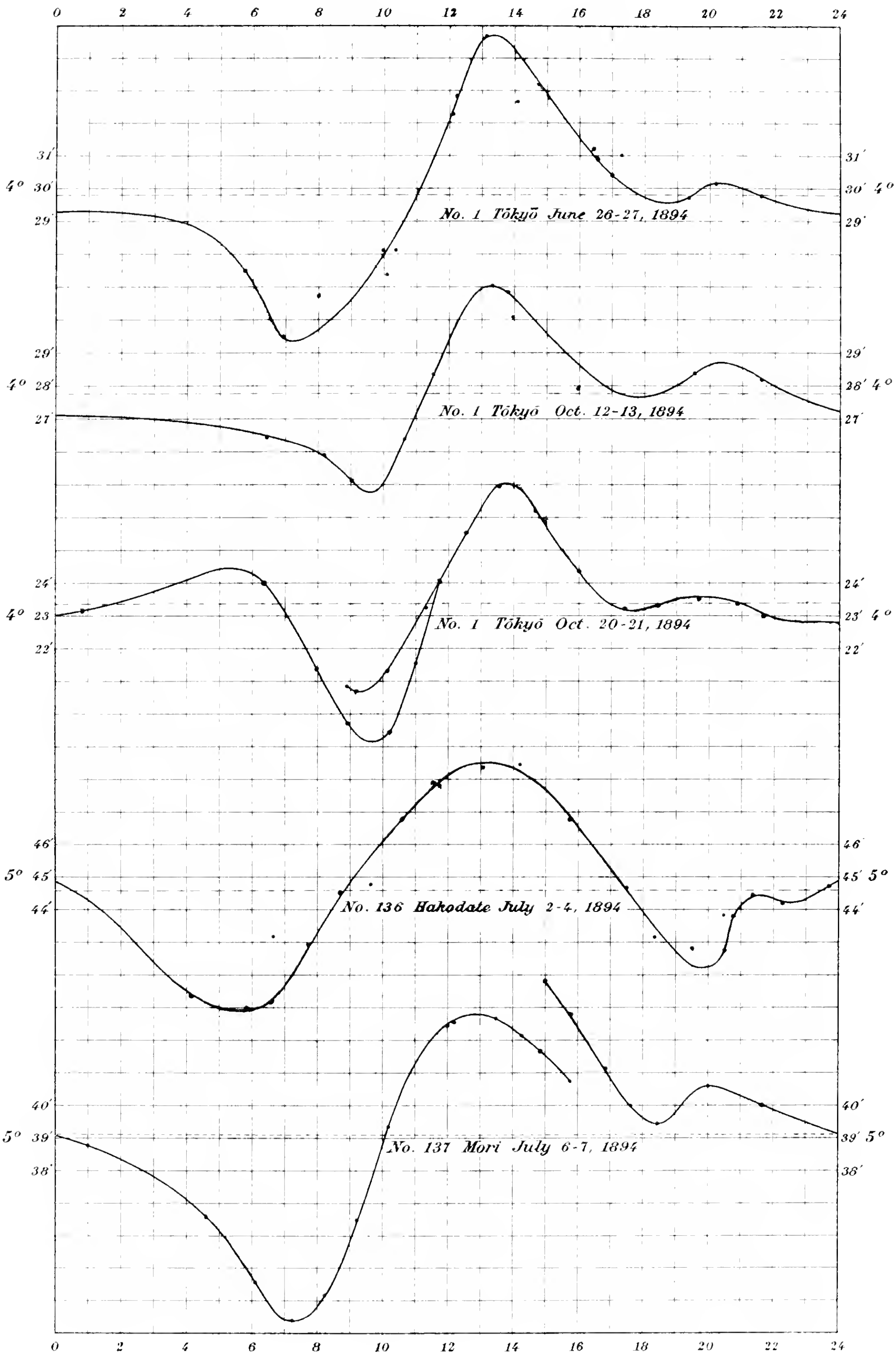
Observations of 1894 (North Party)



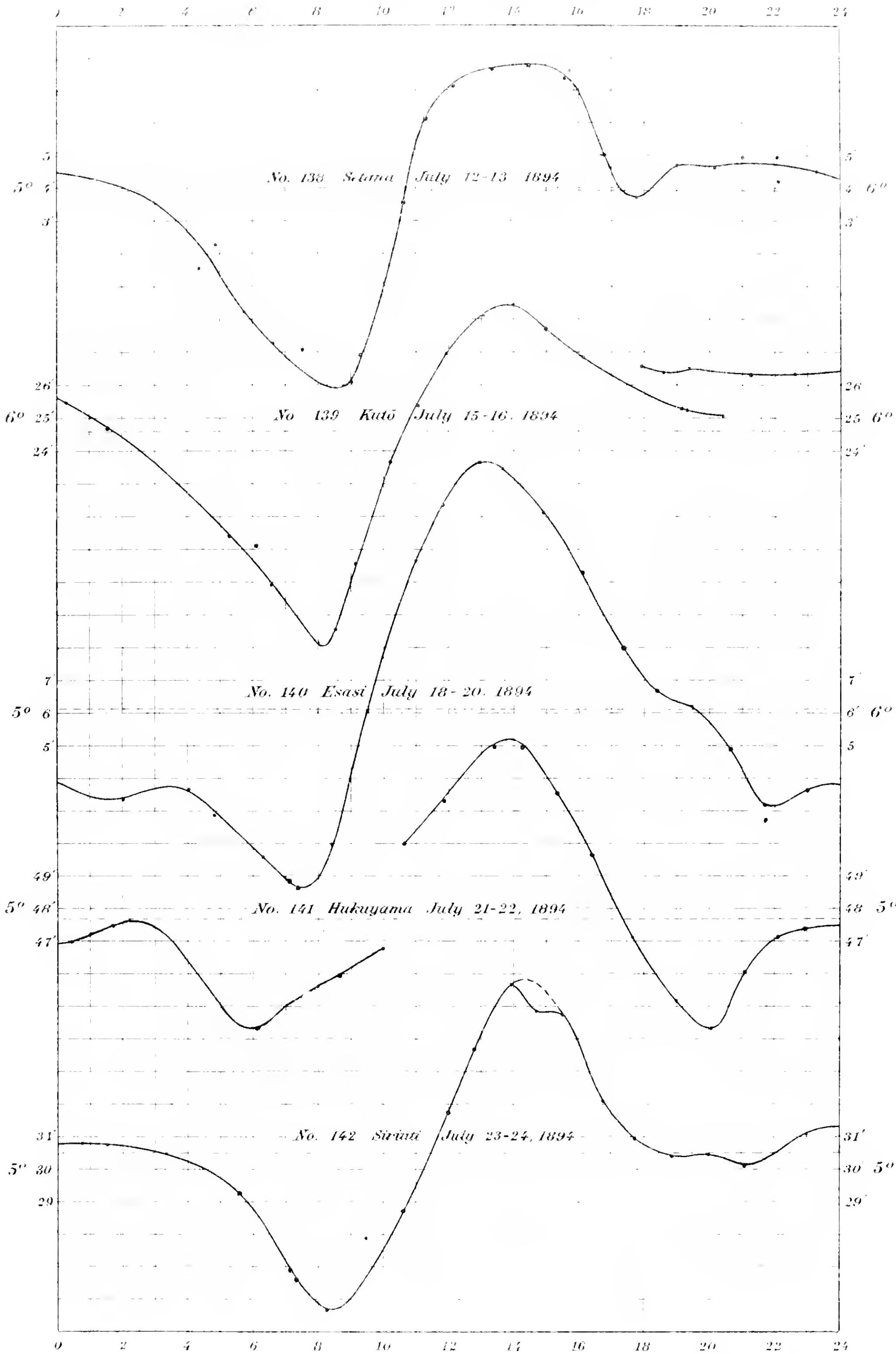
Observations of 1894 (North Party)



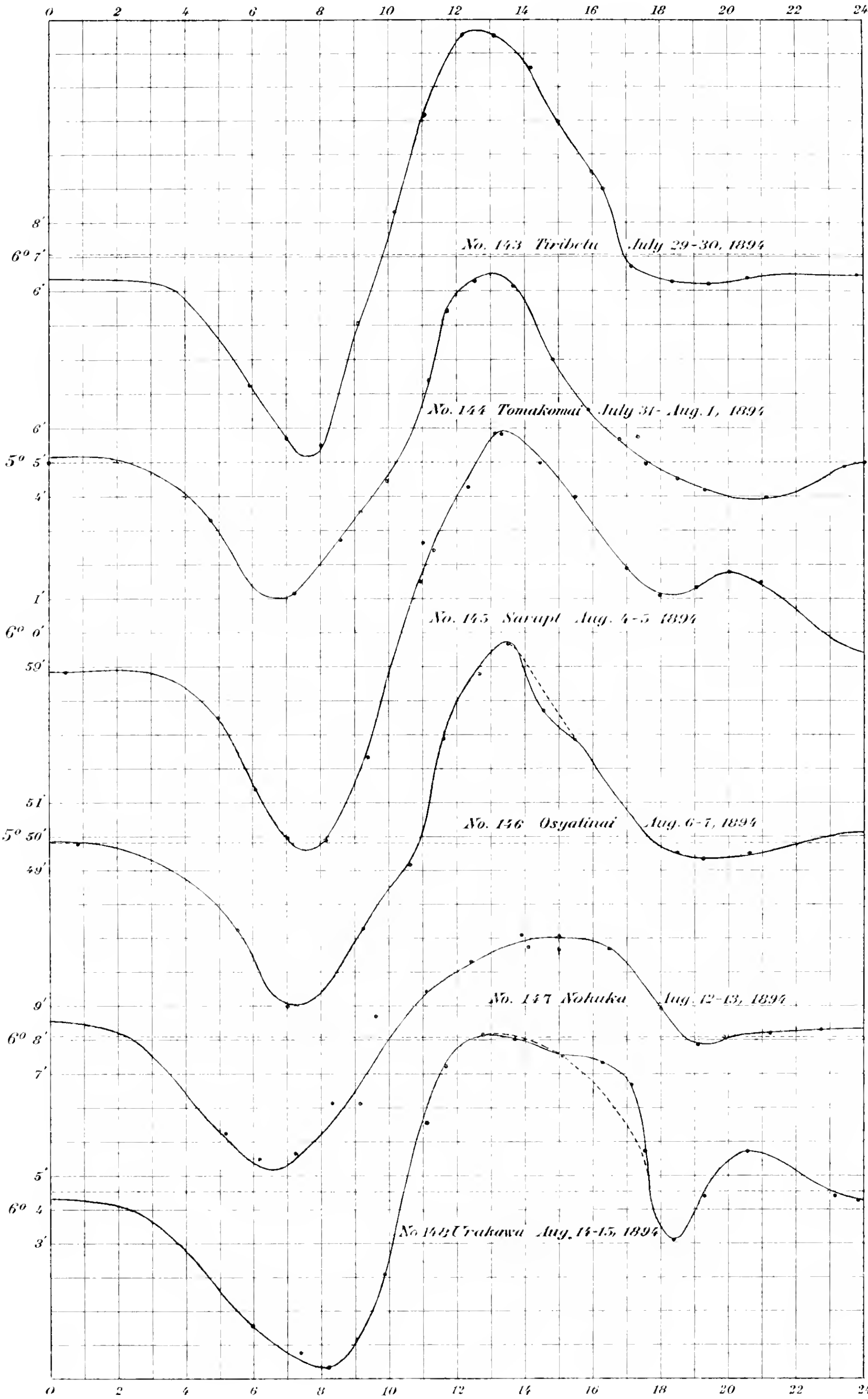
Observations of 1894 (South Party)



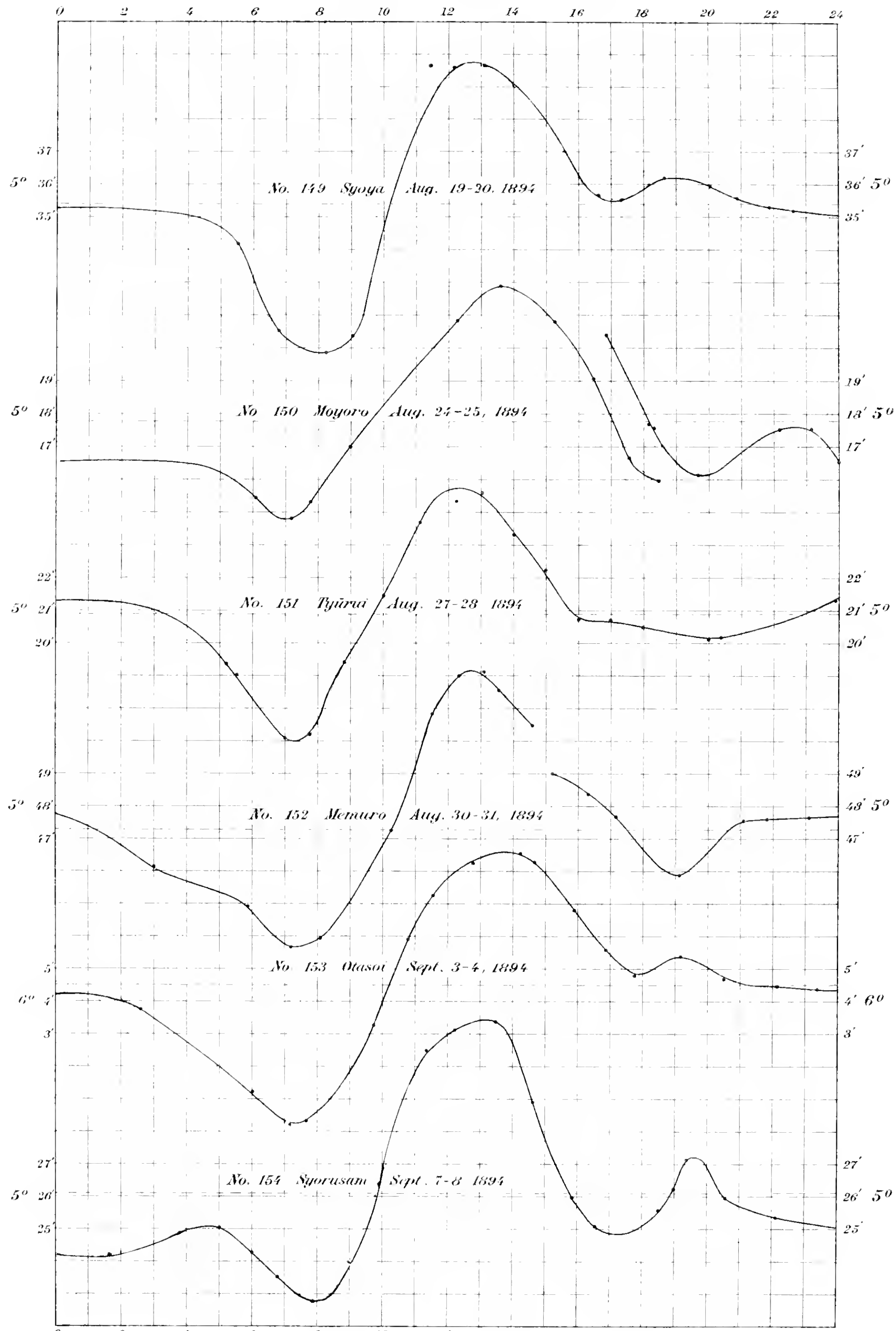
Observations of 1894 (South Party)



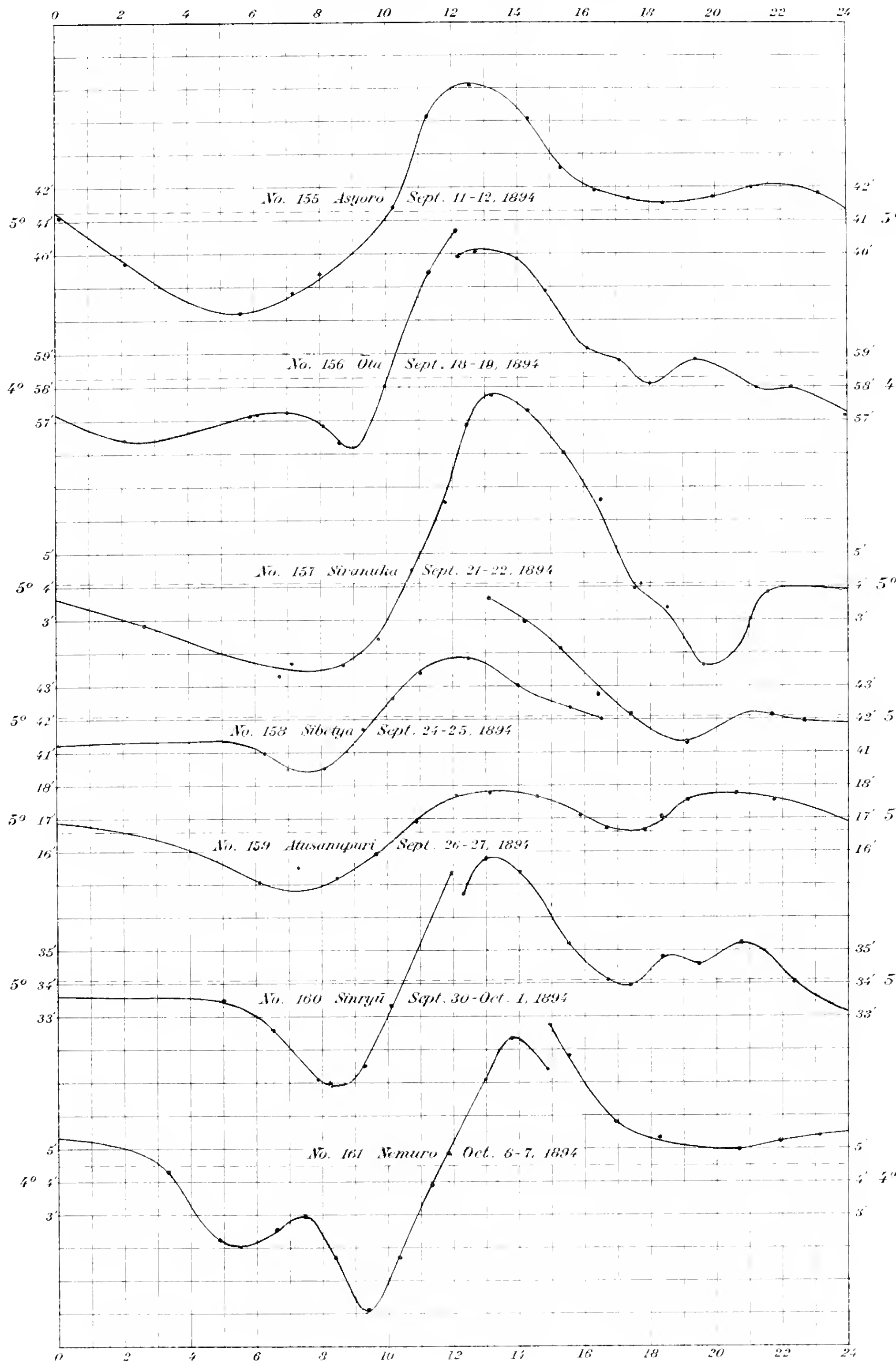
Observations of 1894 (South Party)



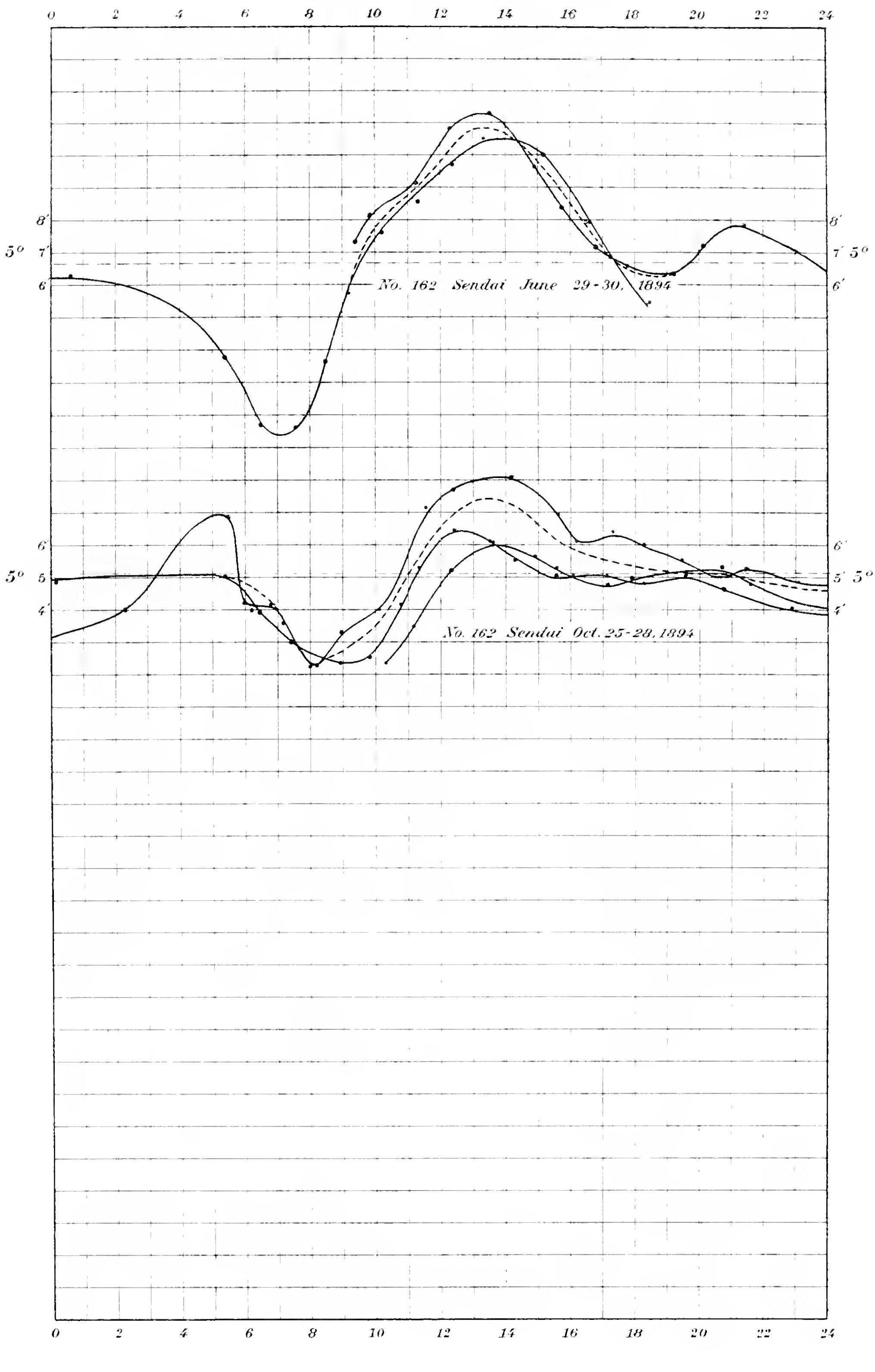
Obse Observations of 1894 (South Party)



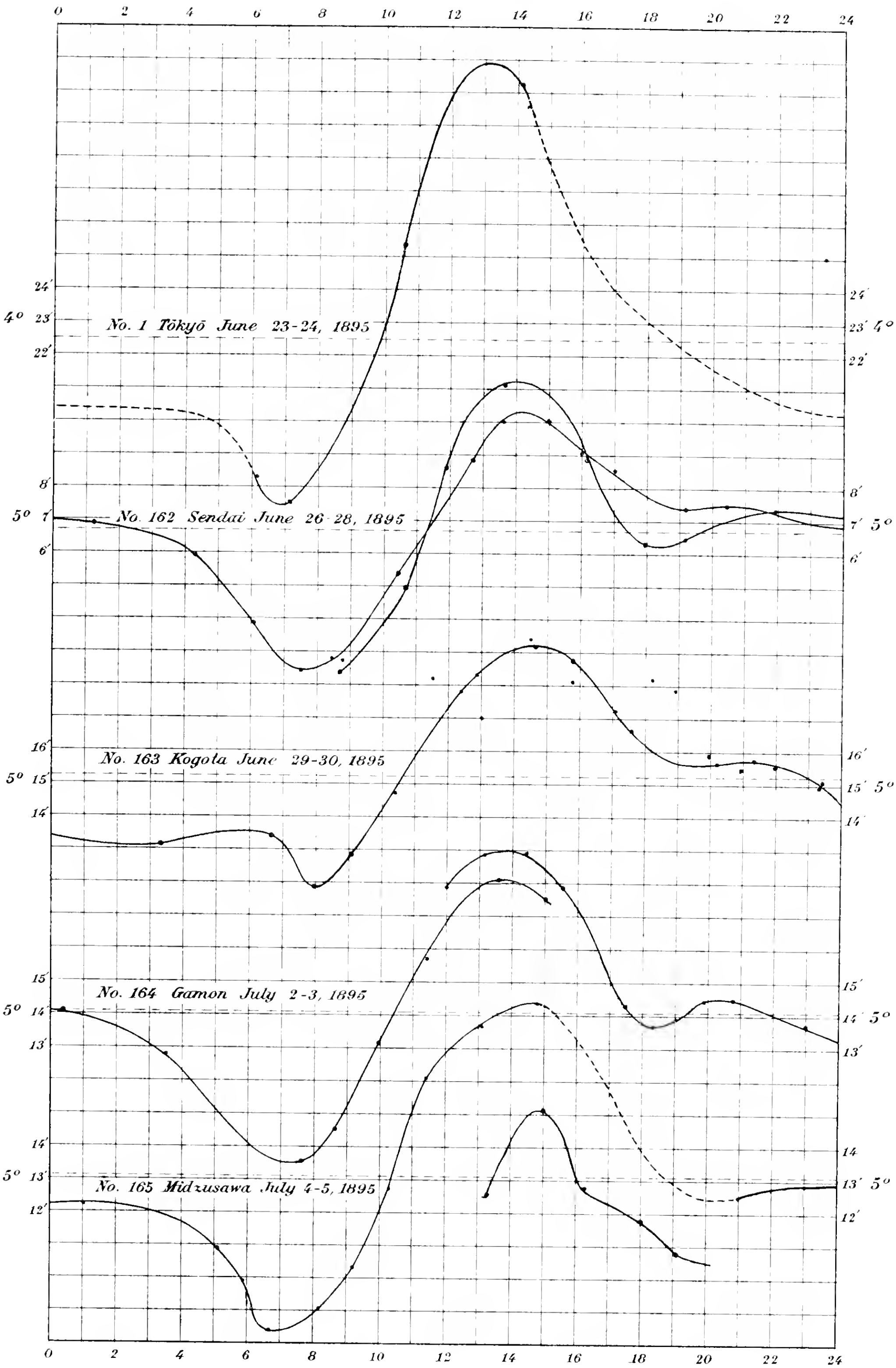
Observations of 1894 (South Party)



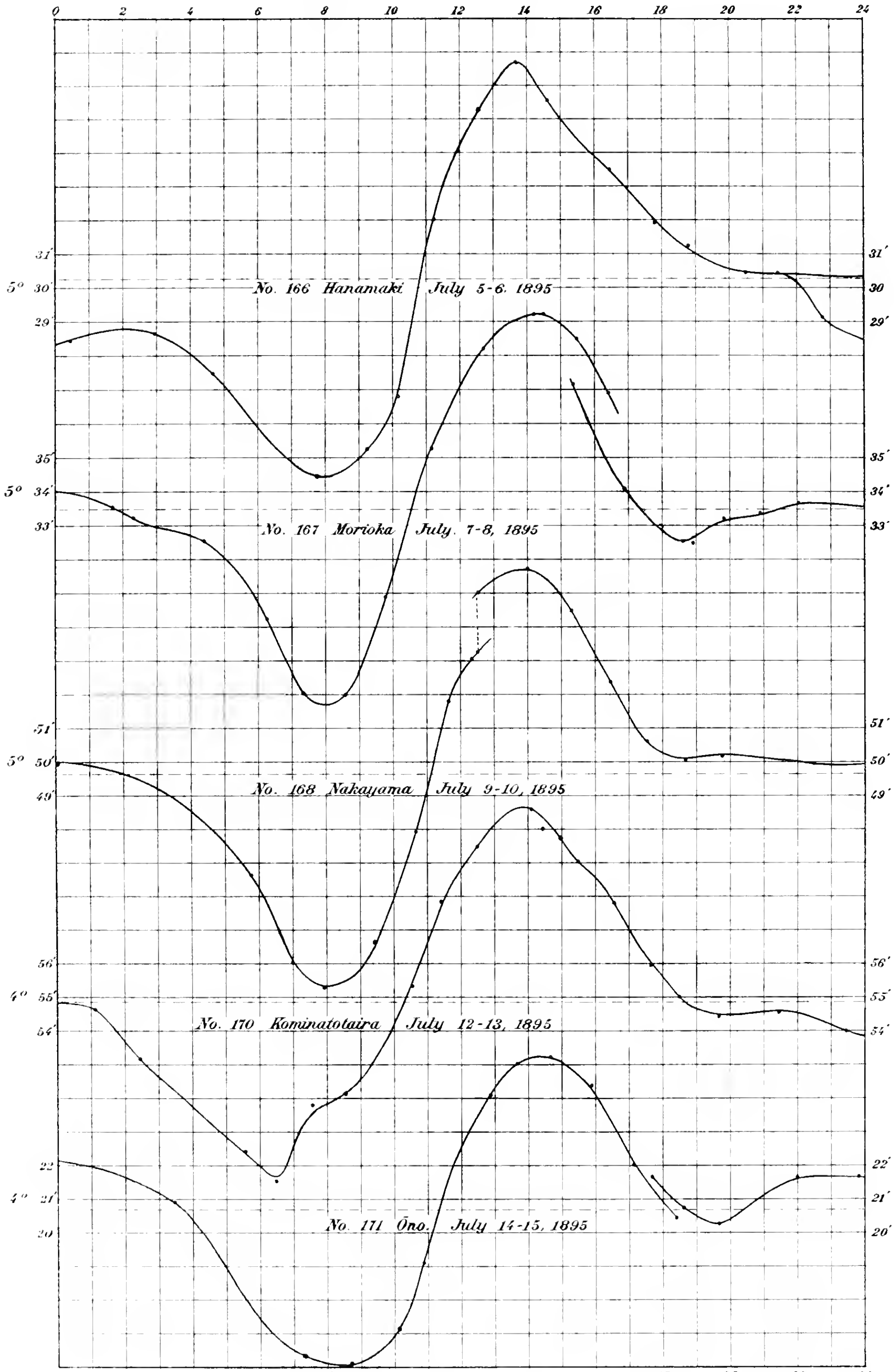
Observations of 1894 (South Party)



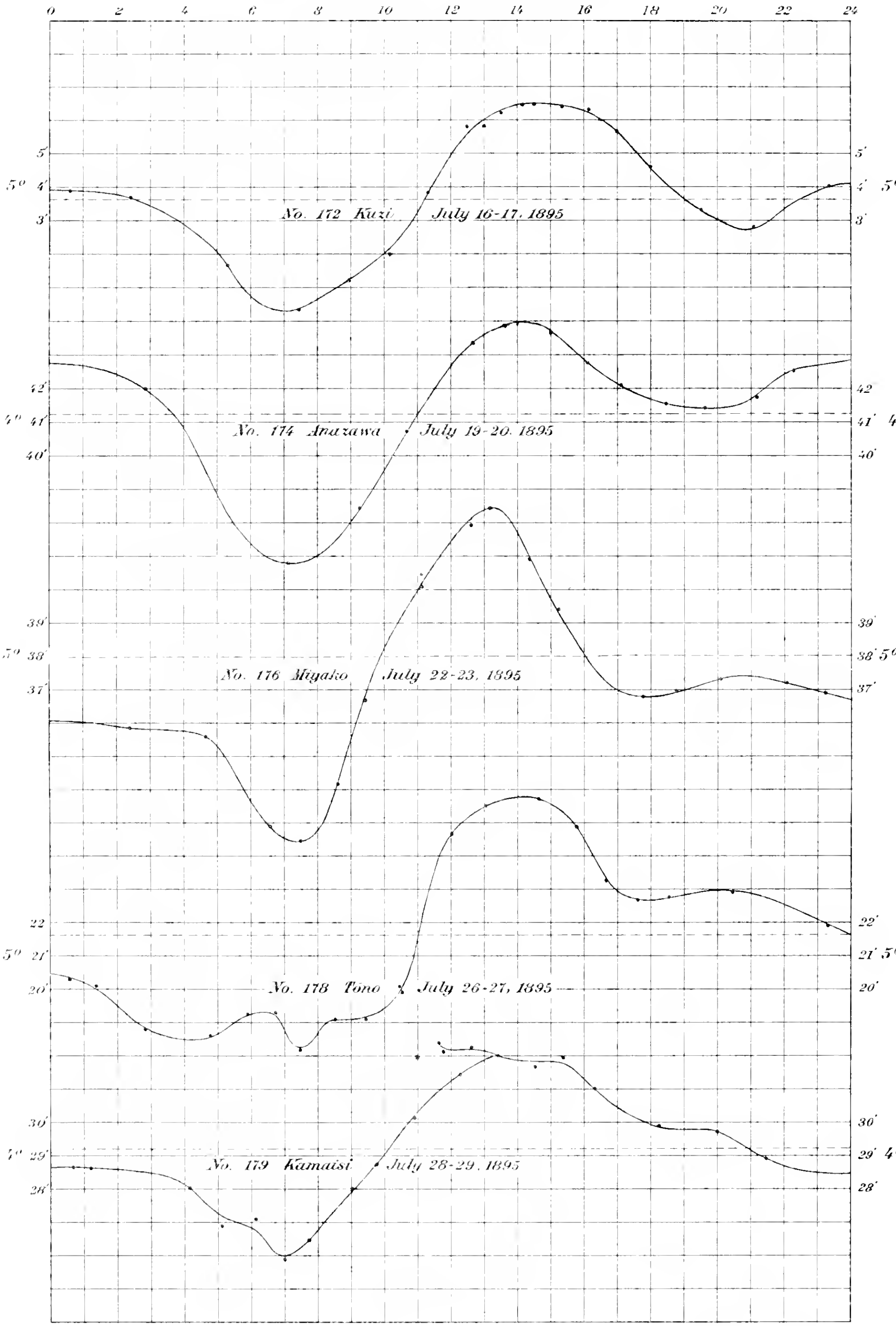
Observations of 1895 (North Party)



Observations of 1895 (North Party)



Observations of 1895 (North Party)



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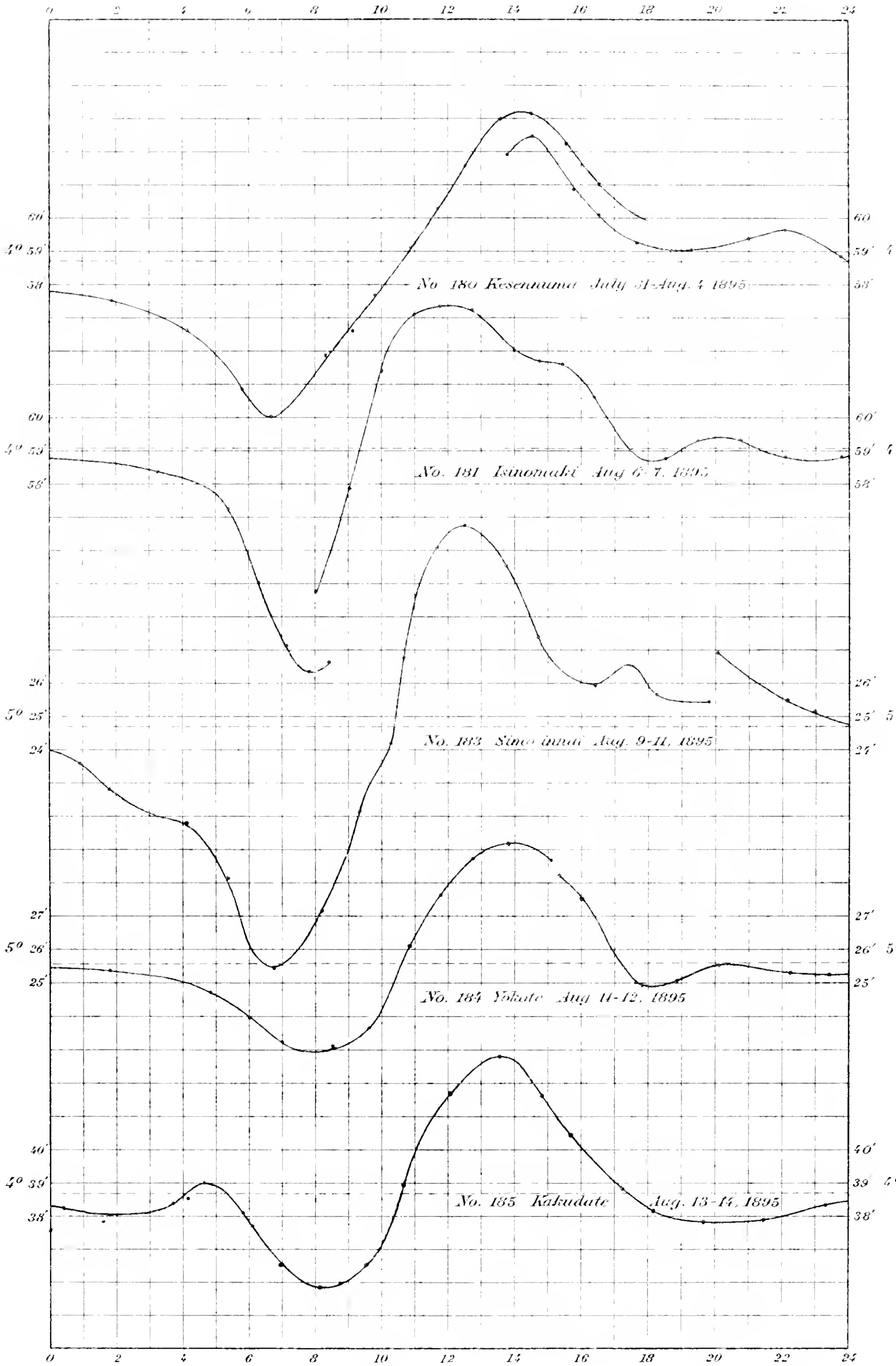

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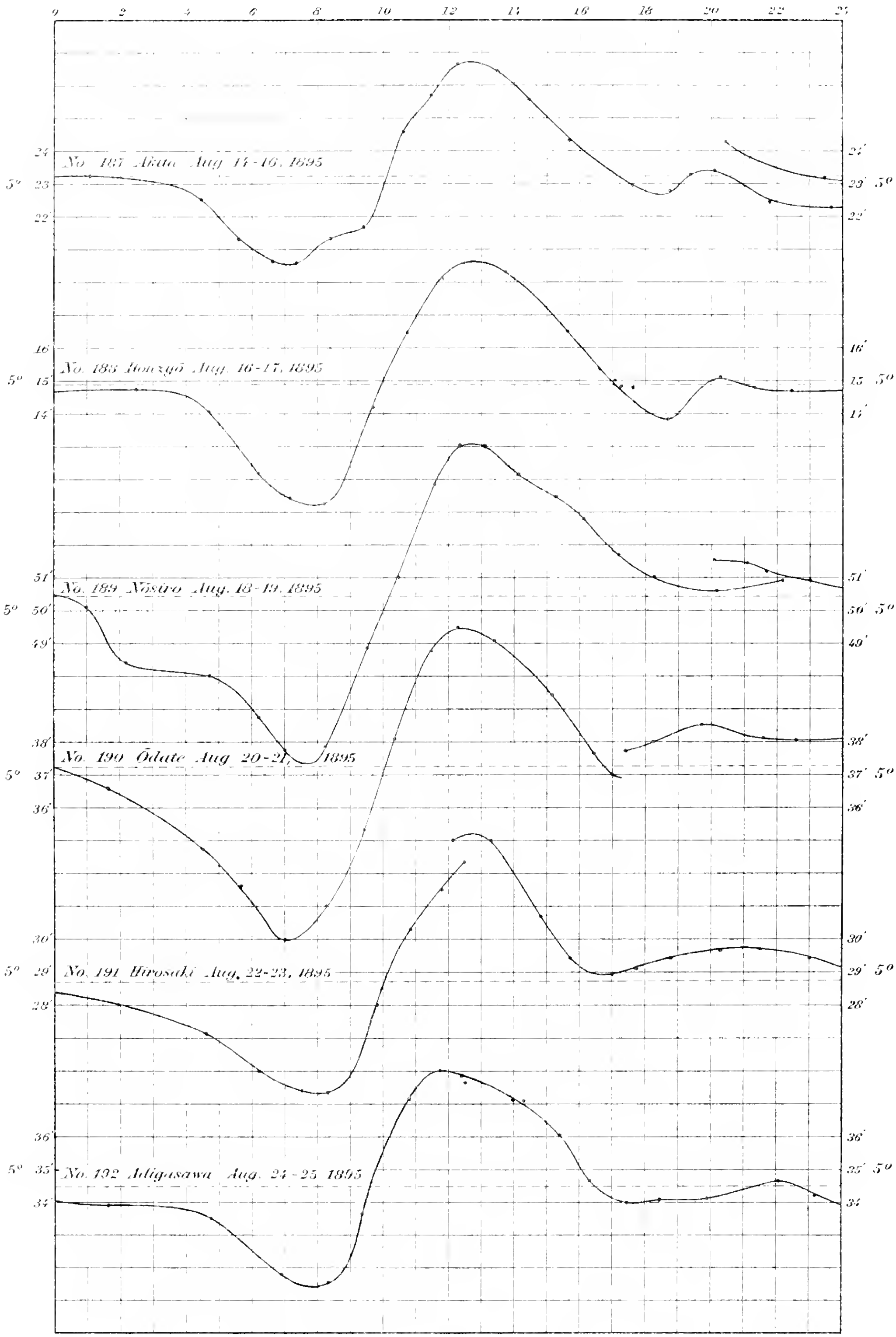
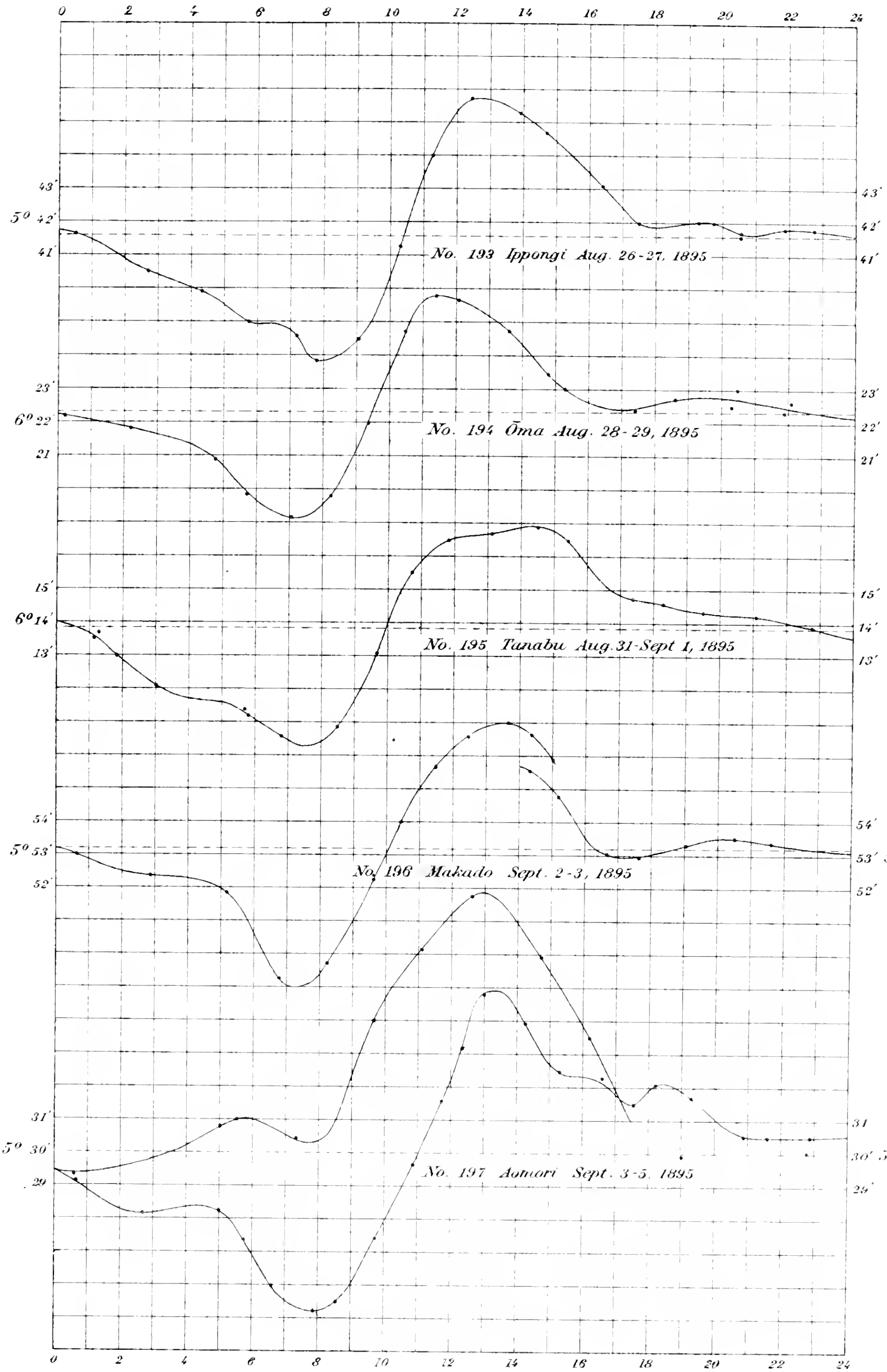
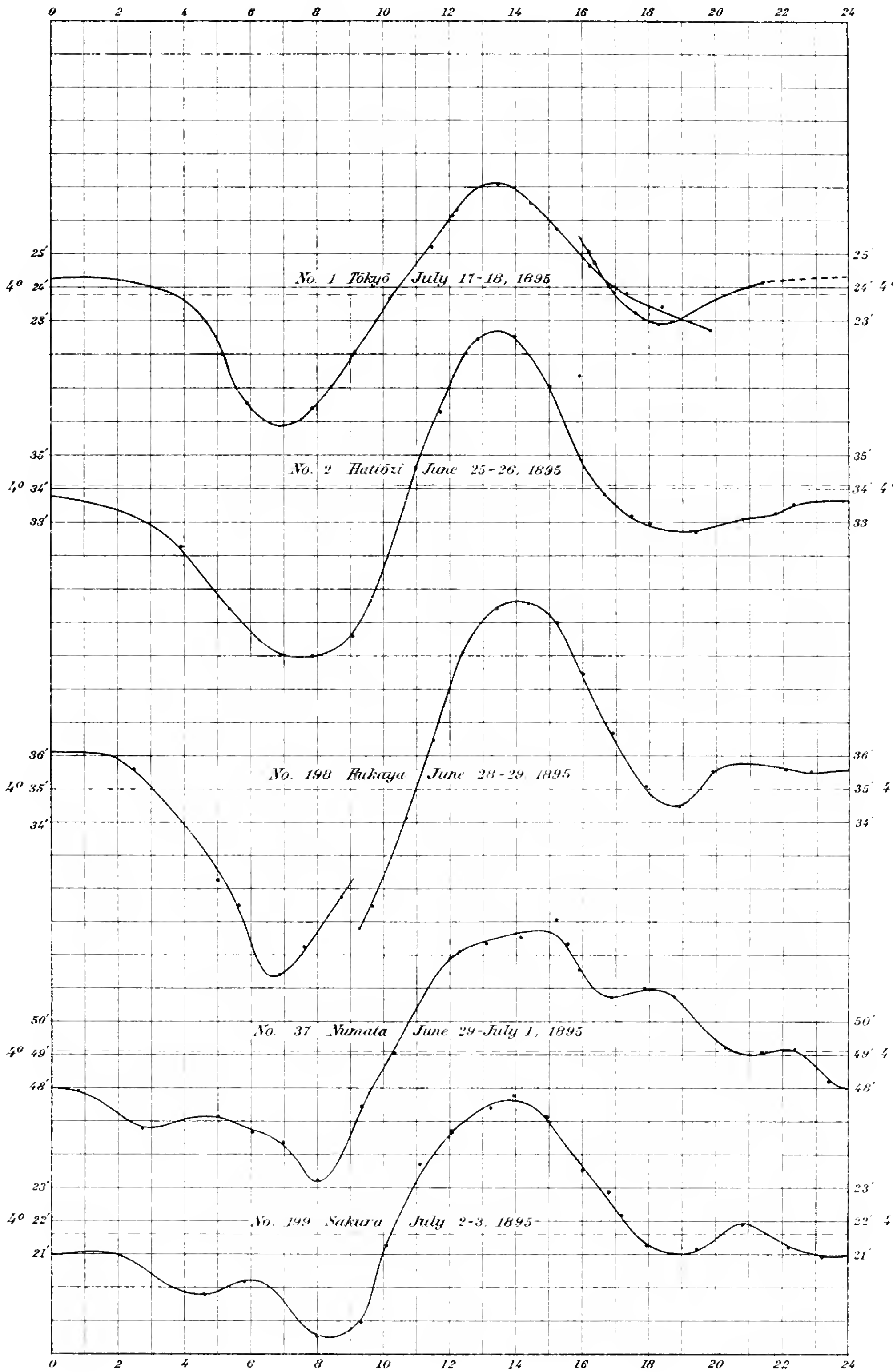
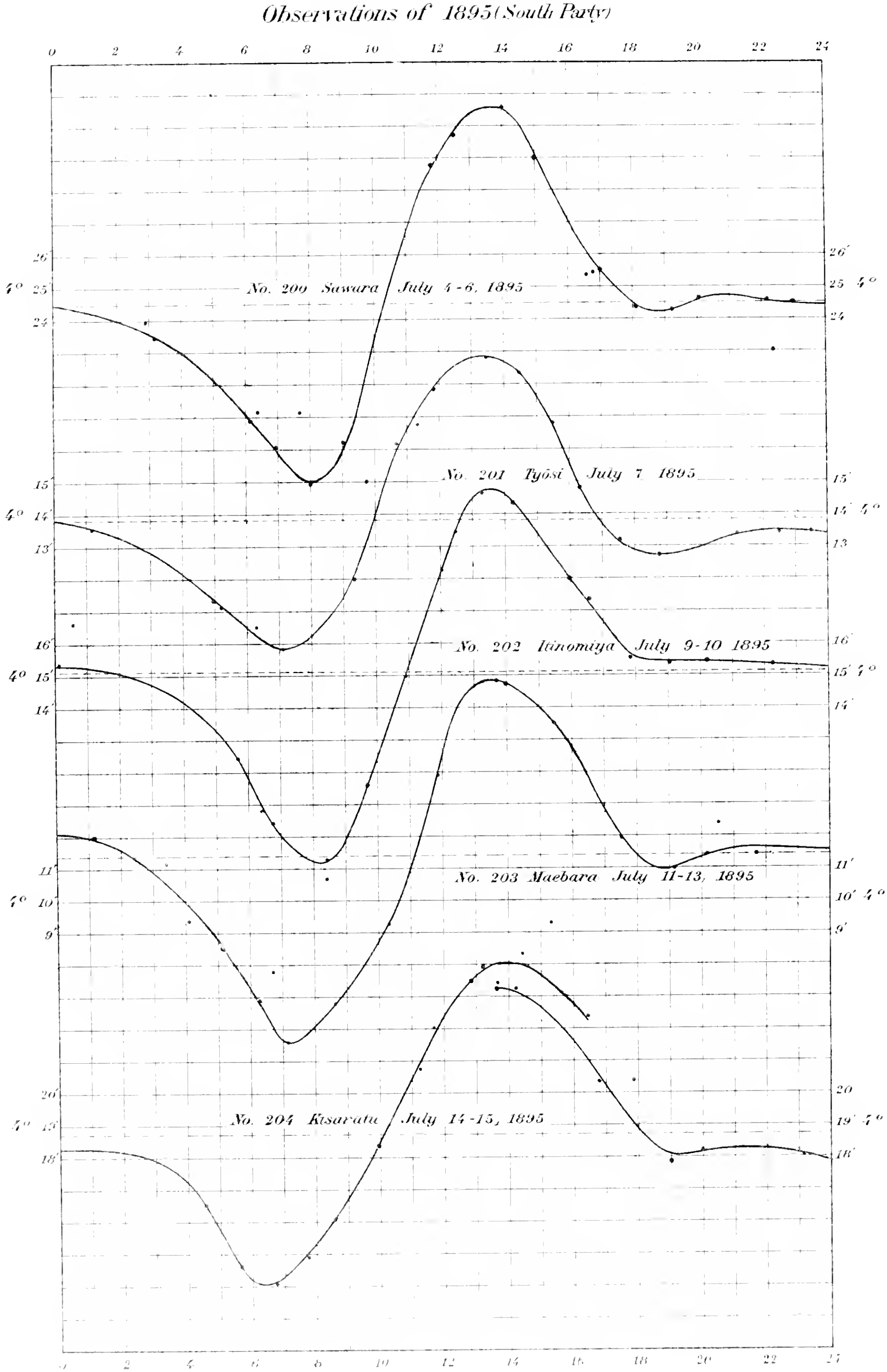


Observations of 1895 (North Party)

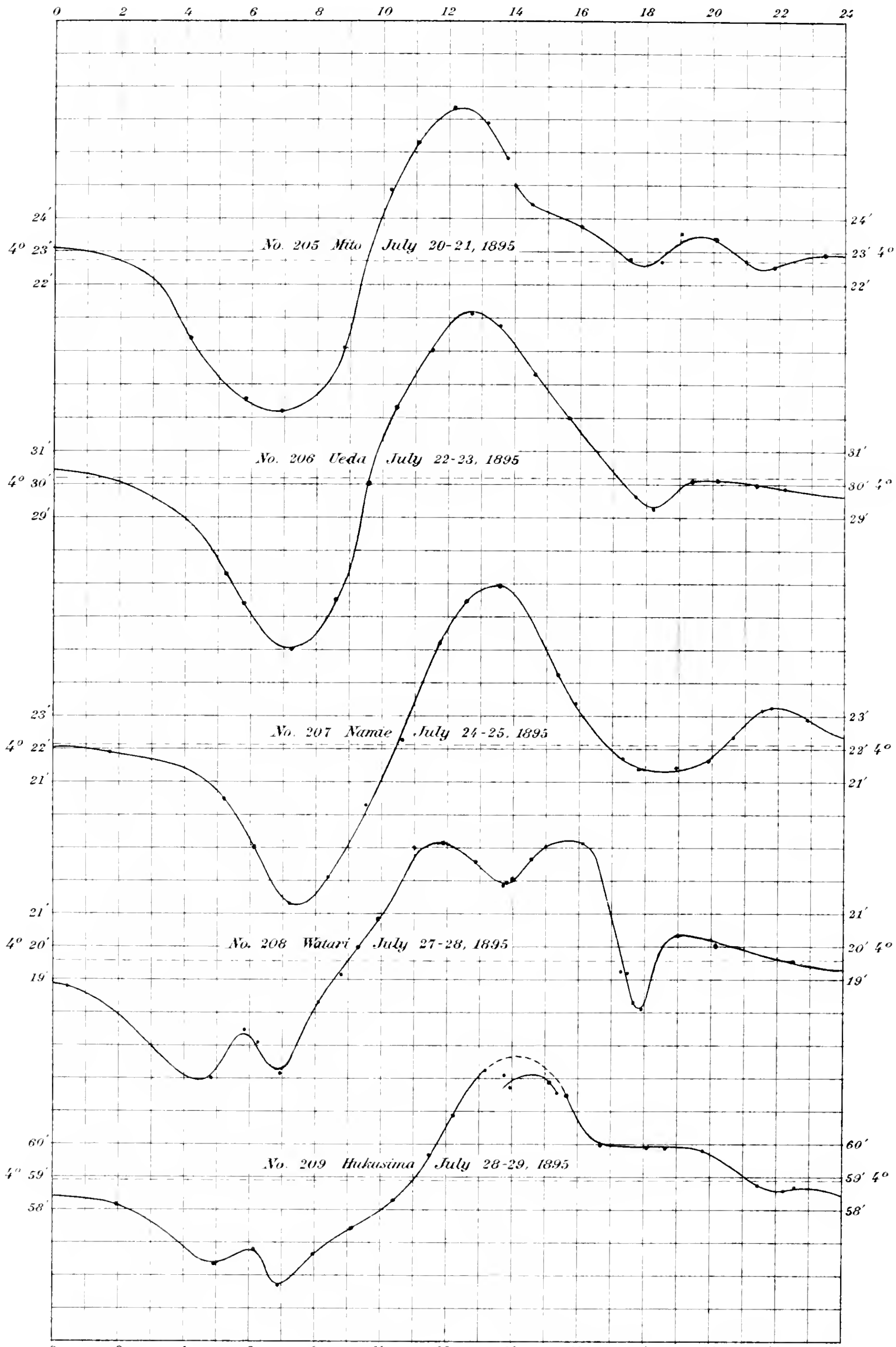


Observations of 1895 (South Party)

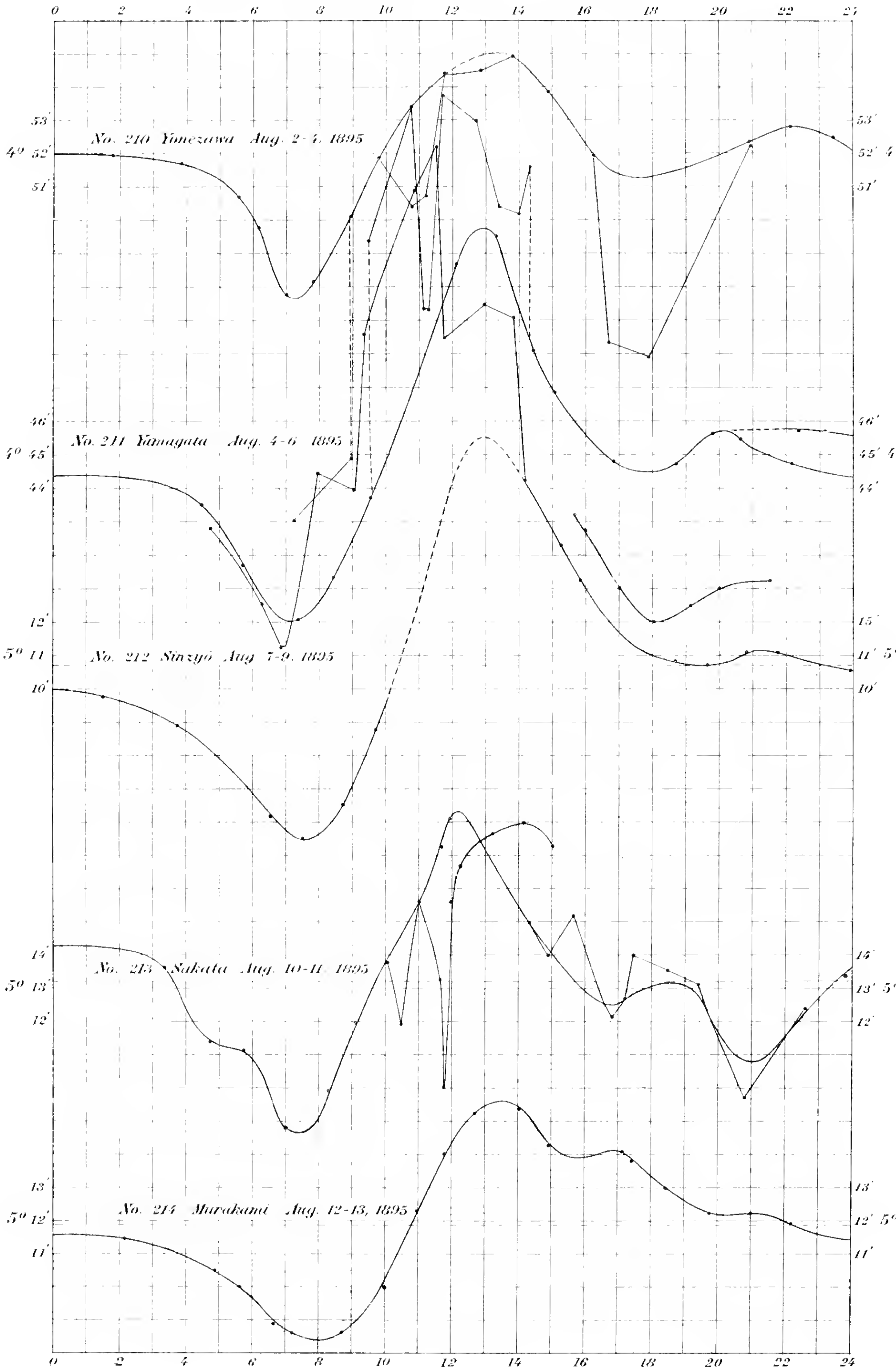



Observations of 1895 (South Party)
No. 200 Sawara July 4-6, 1895
No. 201 Tyôsi July 7 1895
No. 202 Itinomiya July 9-10 1895
No. 203 Maebara July 11-13, 1895
No. 204 Kisaratu July 14-15, 1895

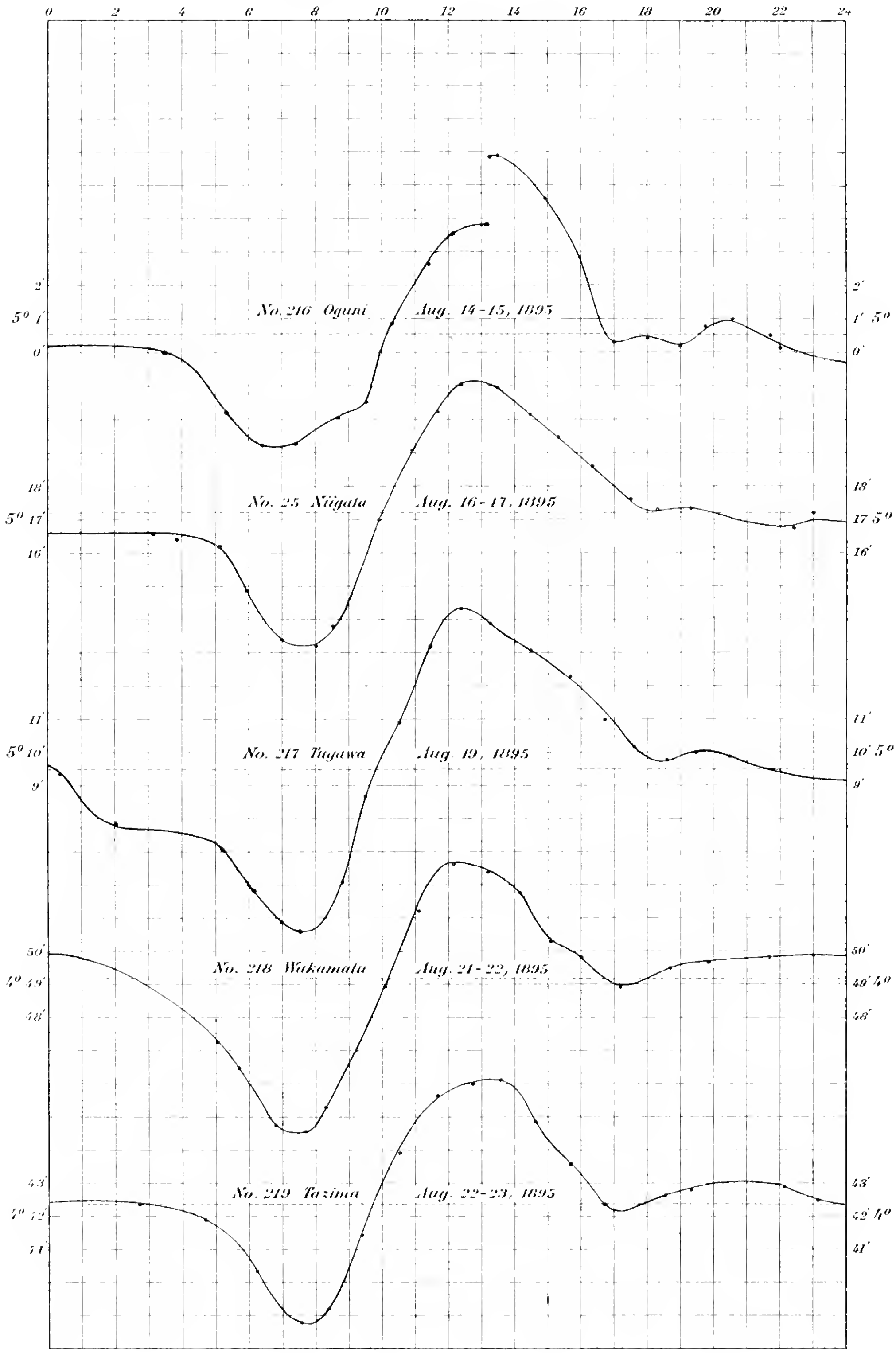
Observations of 1895 (South Party)



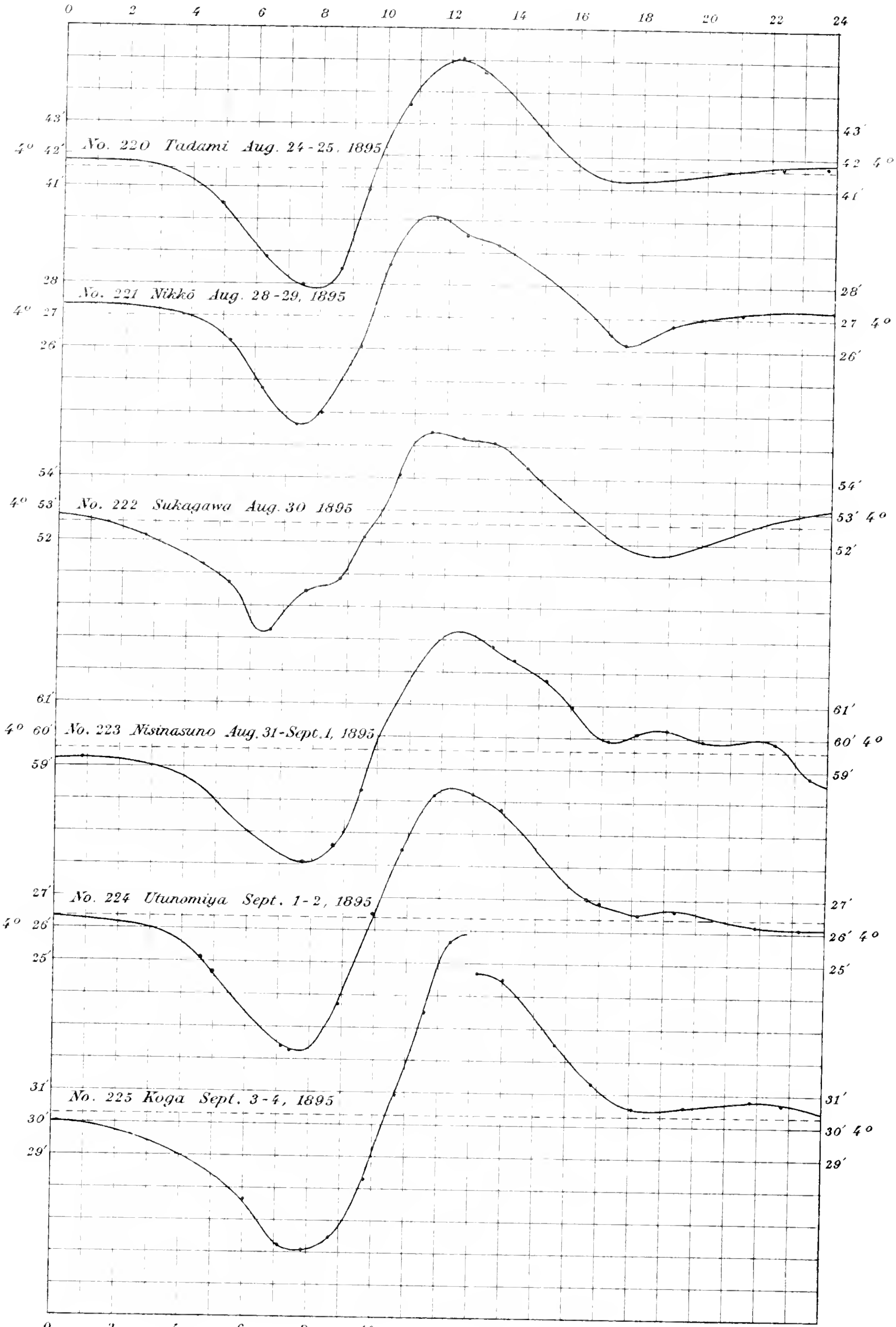
Obser Observations of 1895 (South Party)

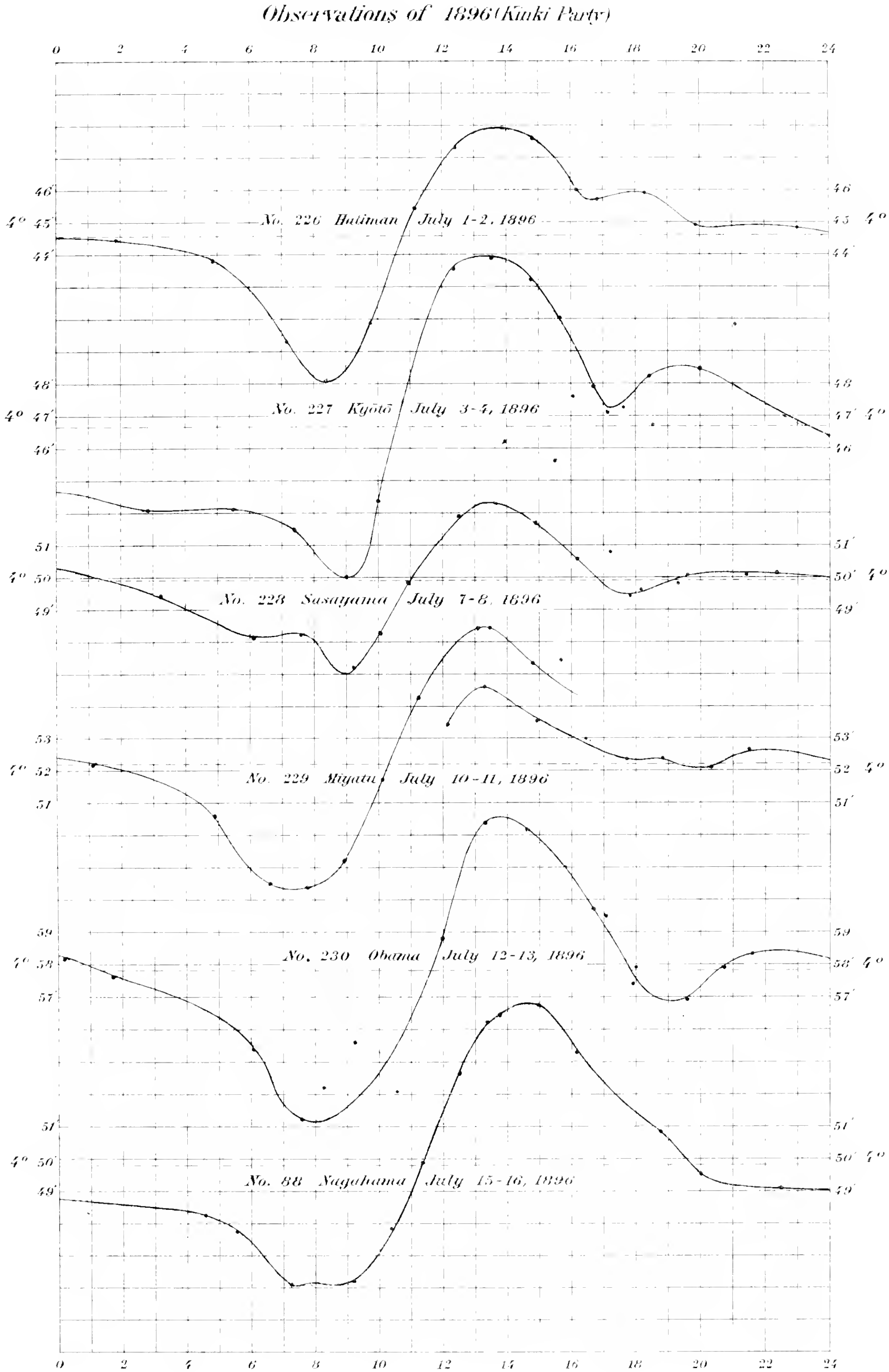


Observations of 1895 (South Party)

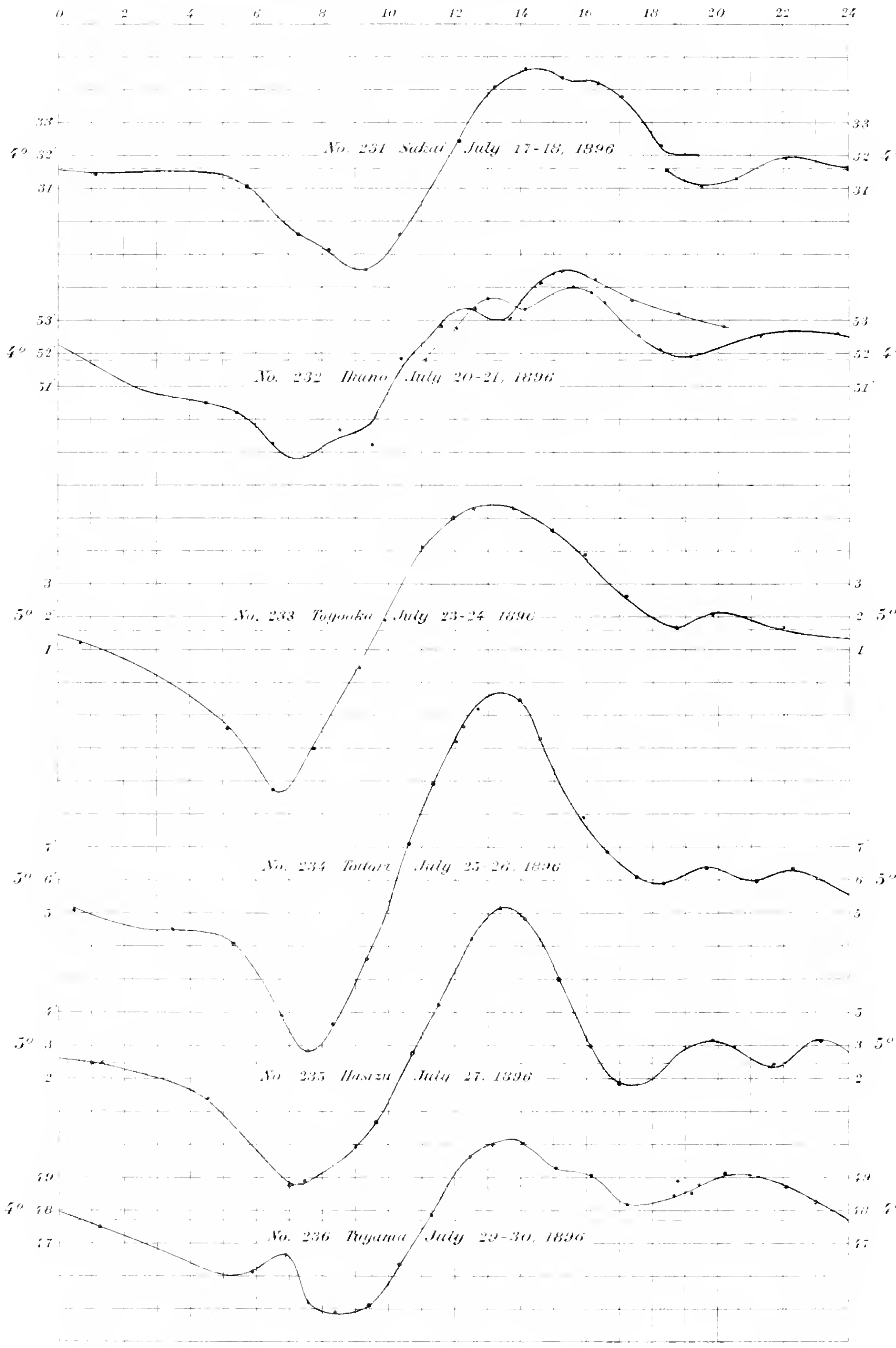


Observations of 1895 (South Party)

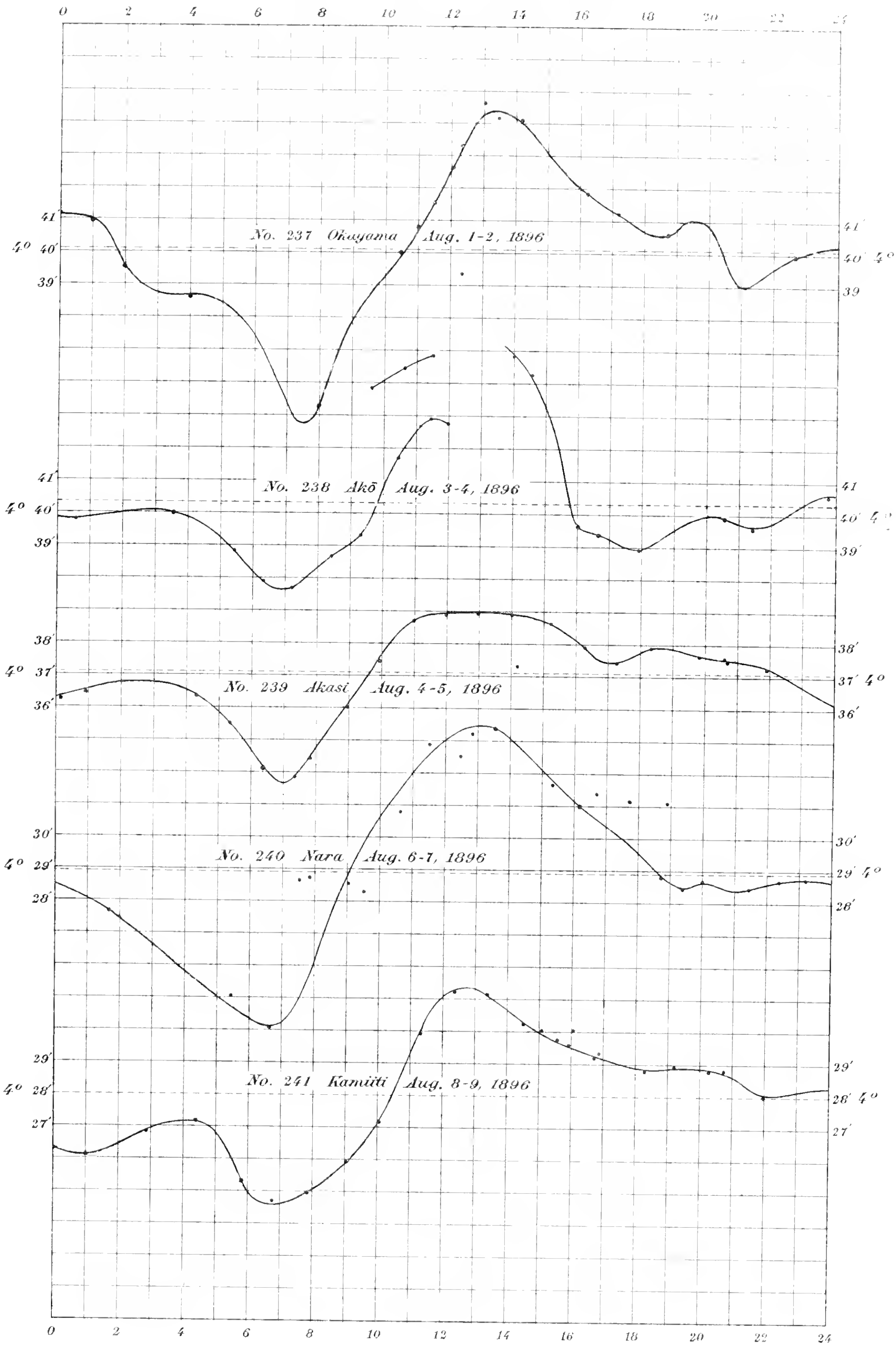



Observations of 1896 (Kinki Party)
No. 226 Hatiman July 1-2, 1896
No. 227 Kyōto July 3-4, 1896
No. 228 Sasayama July 7-8, 1896
No. 229 Miyatu July 10-11, 1896
No. 230 Obama July 12-13, 1896
No. 88 Nagahama July 15-16, 1896

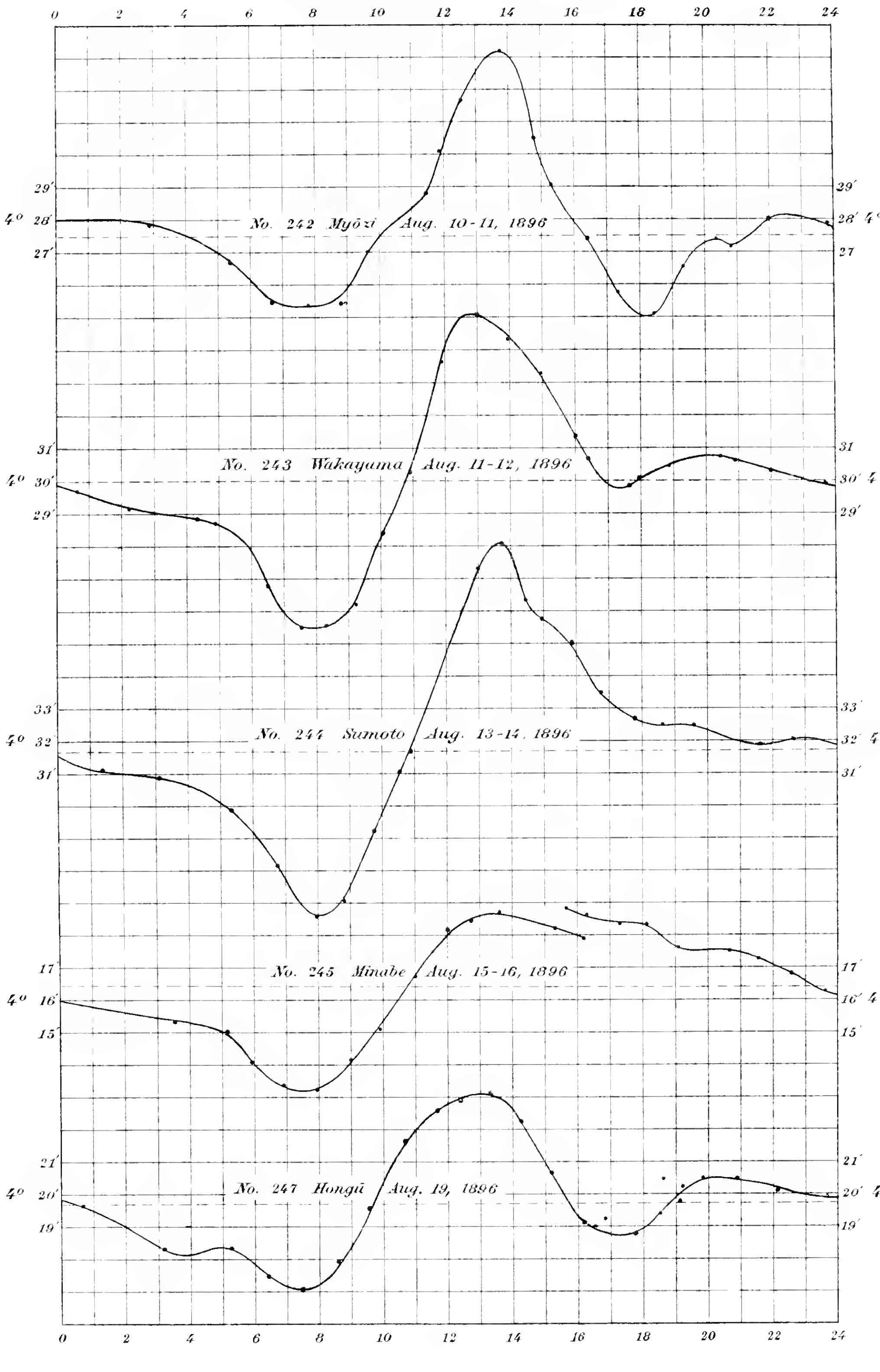
Observations of 1896 (Kinki Party)



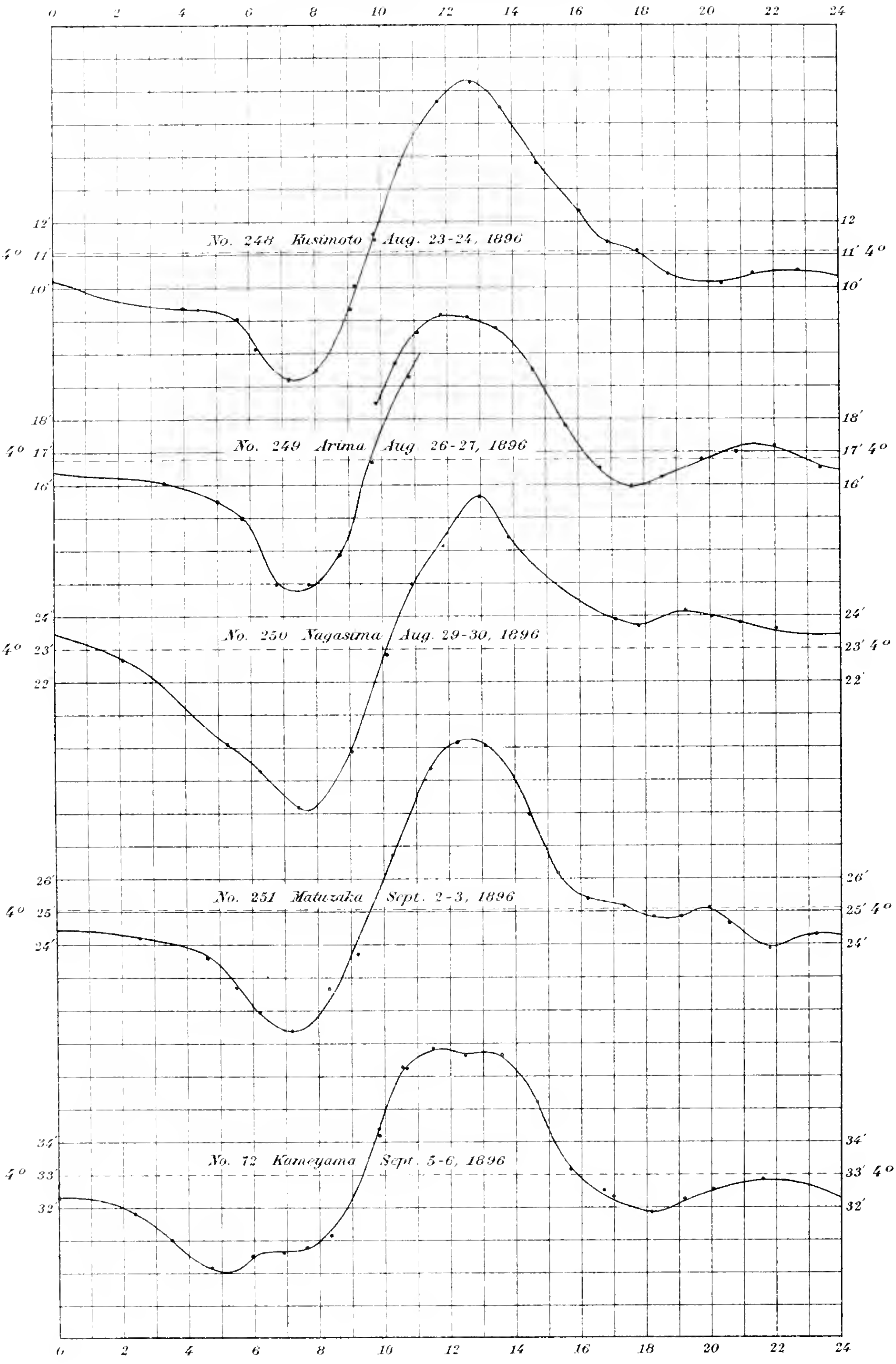
Observations of 1896 (Kinki Party)



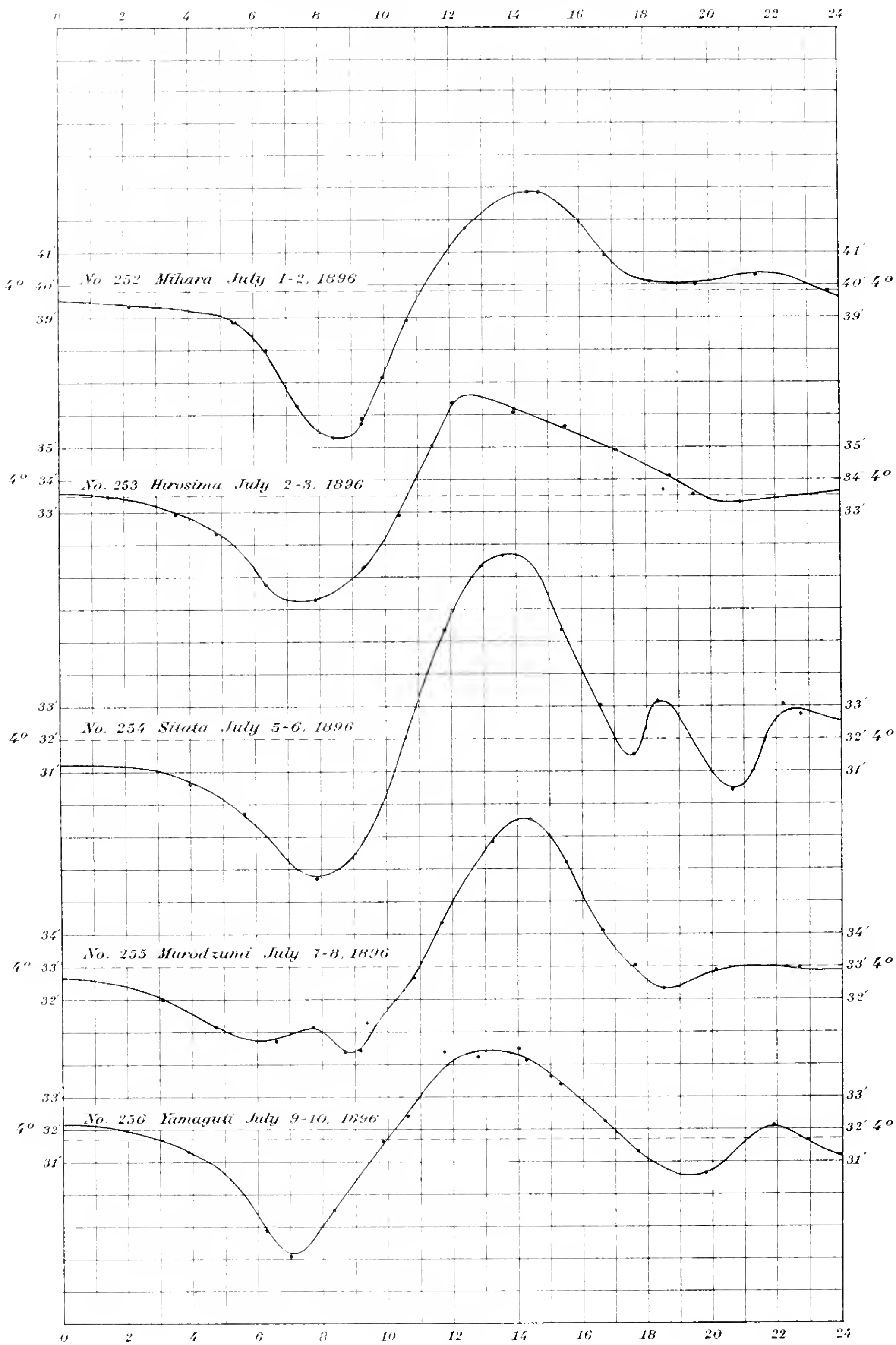
Observations of 1896 (Kinki Party)



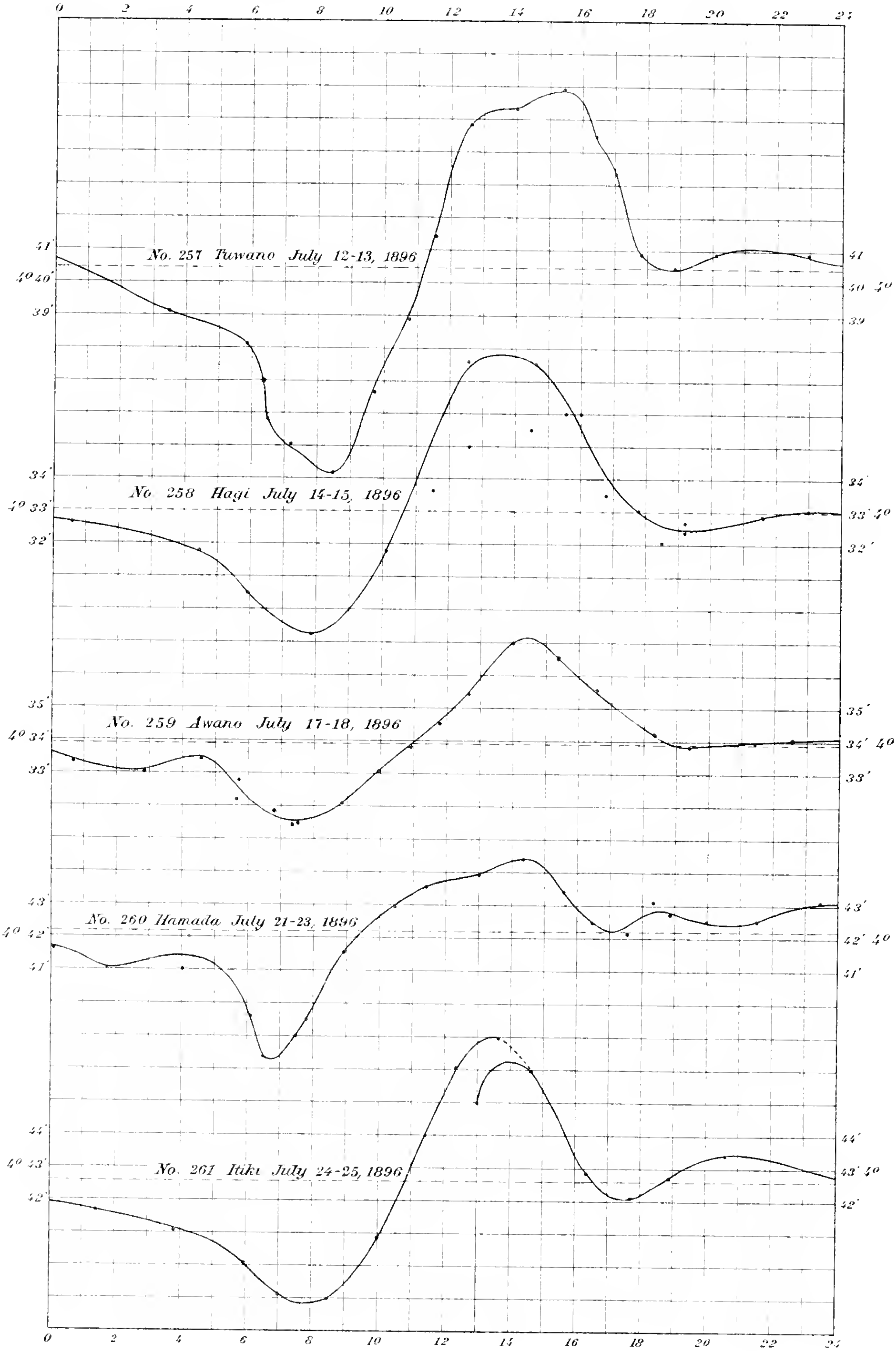
Observations of 1896 (Kinki Party)



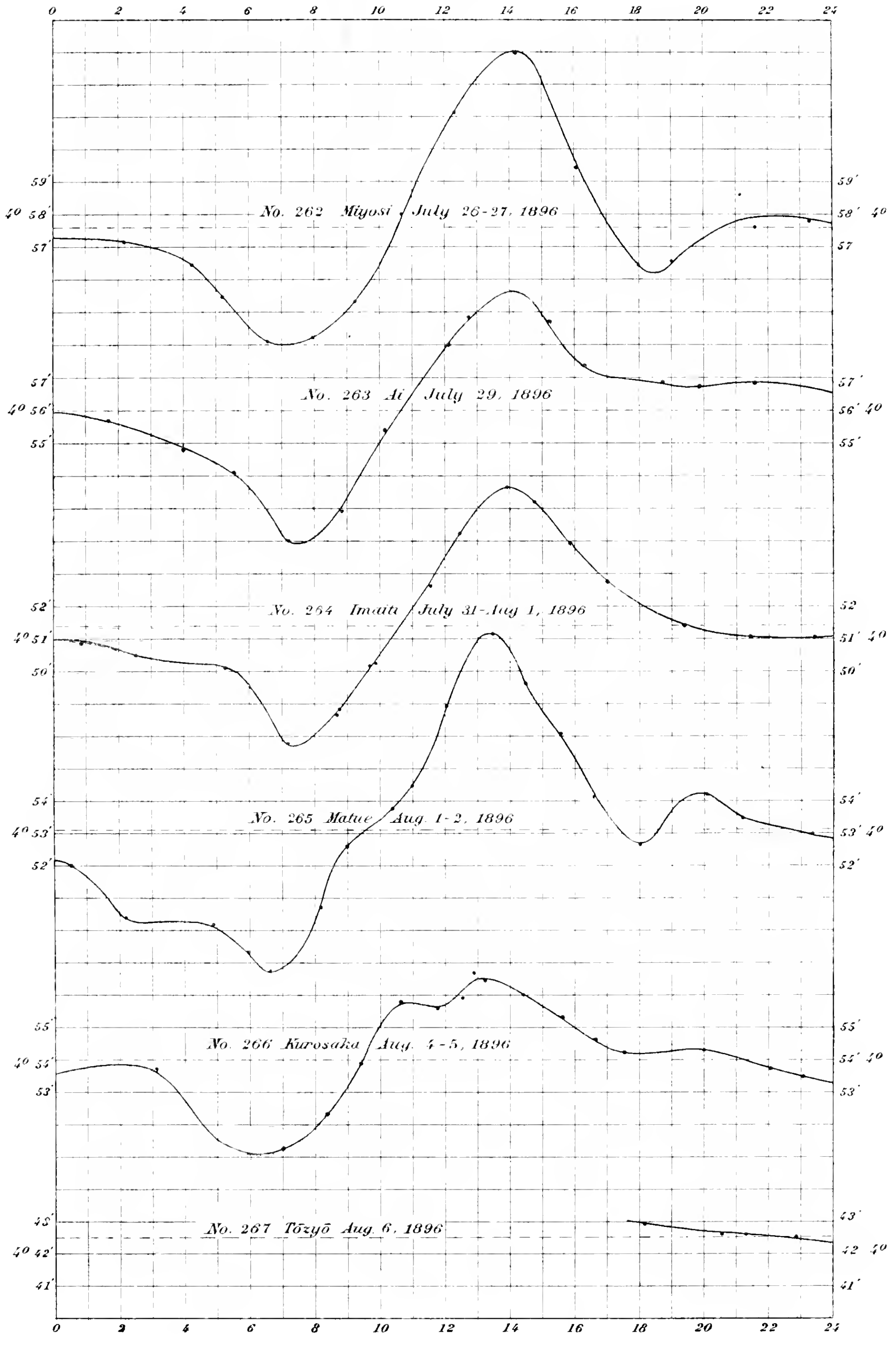
Observations of 1896 (Seto Sea Party)



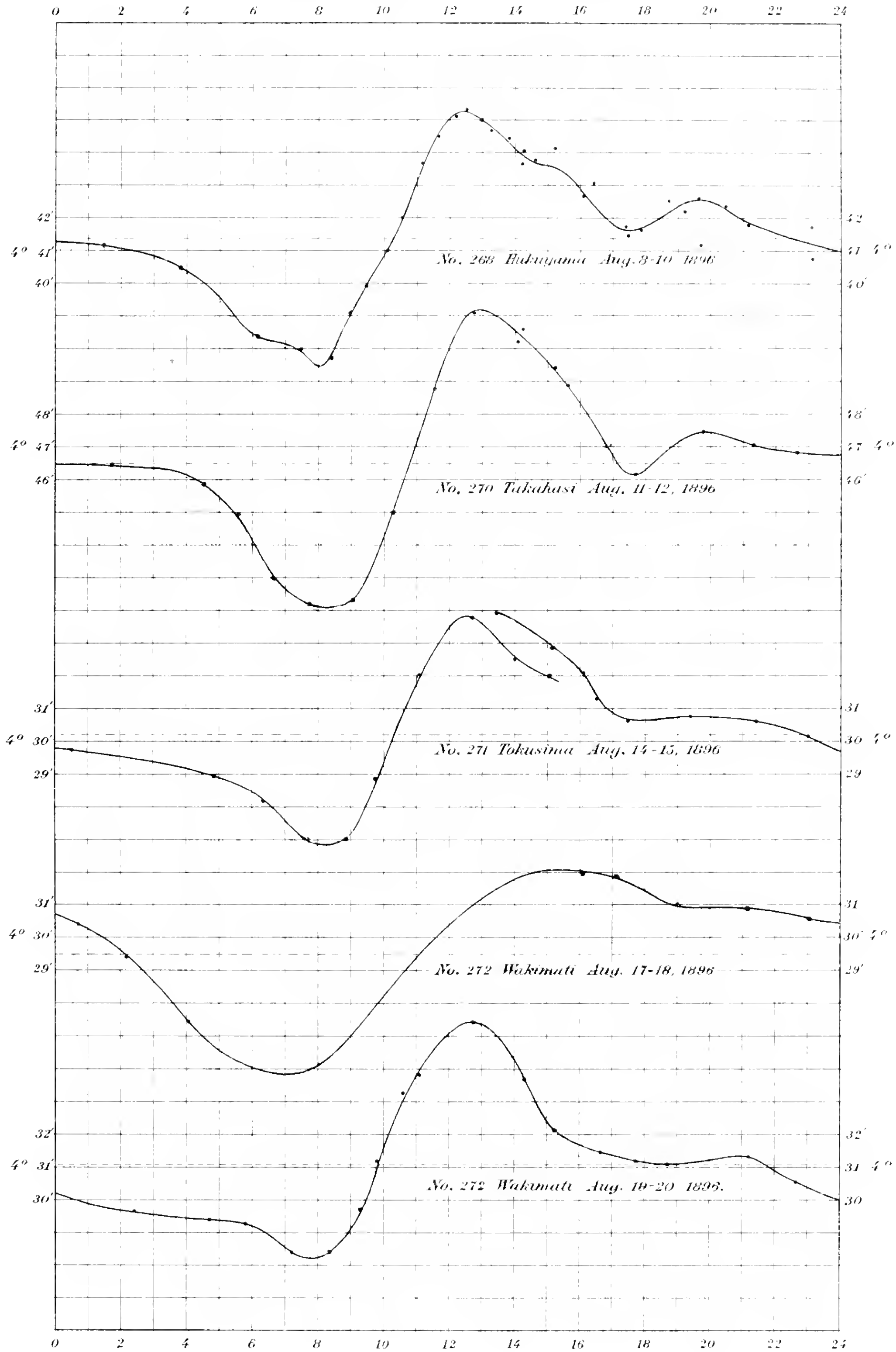
Observations of 1896 (Seto Sea Party)



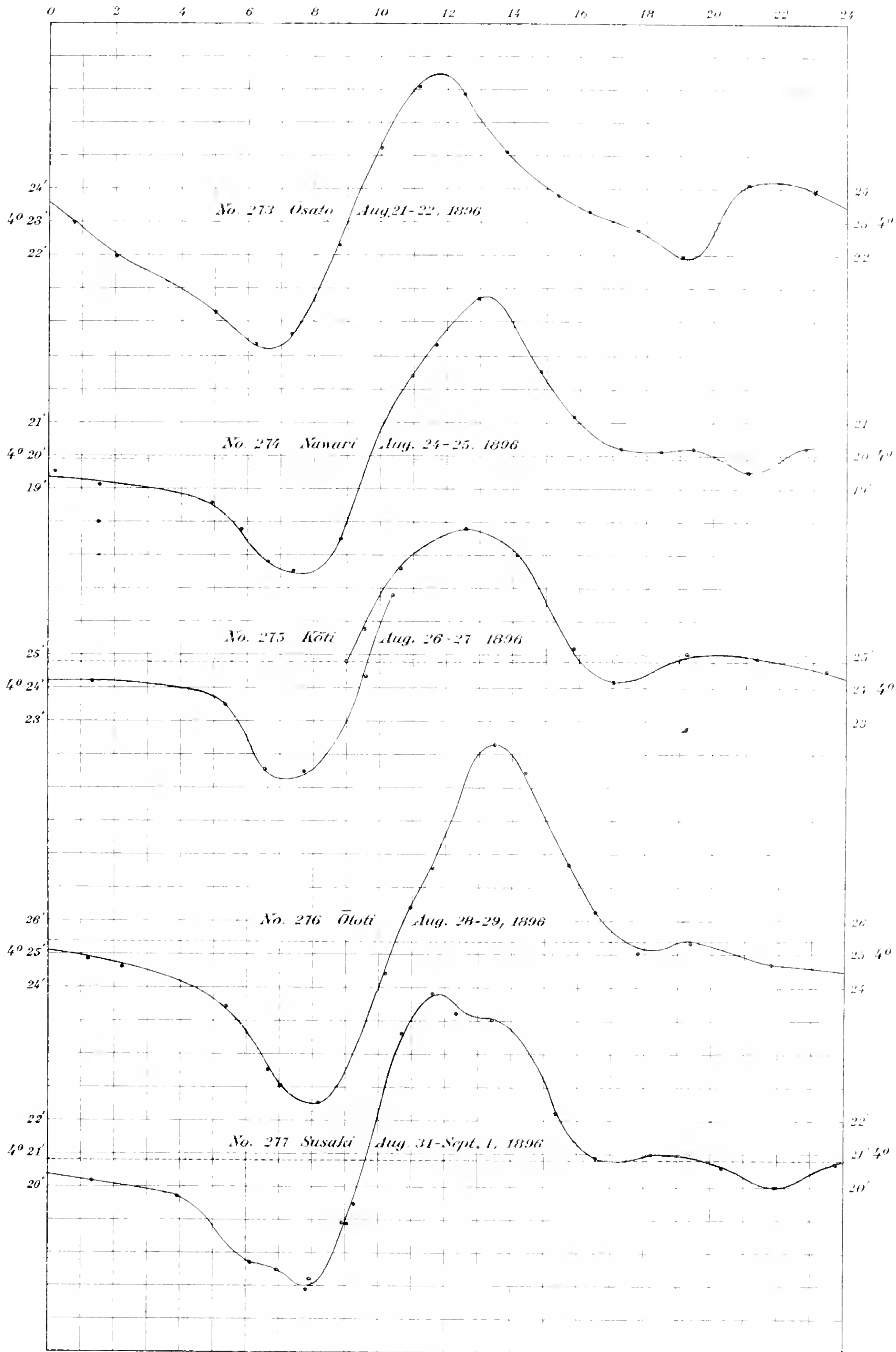
Observations of 1896 (Seto Sea Party)



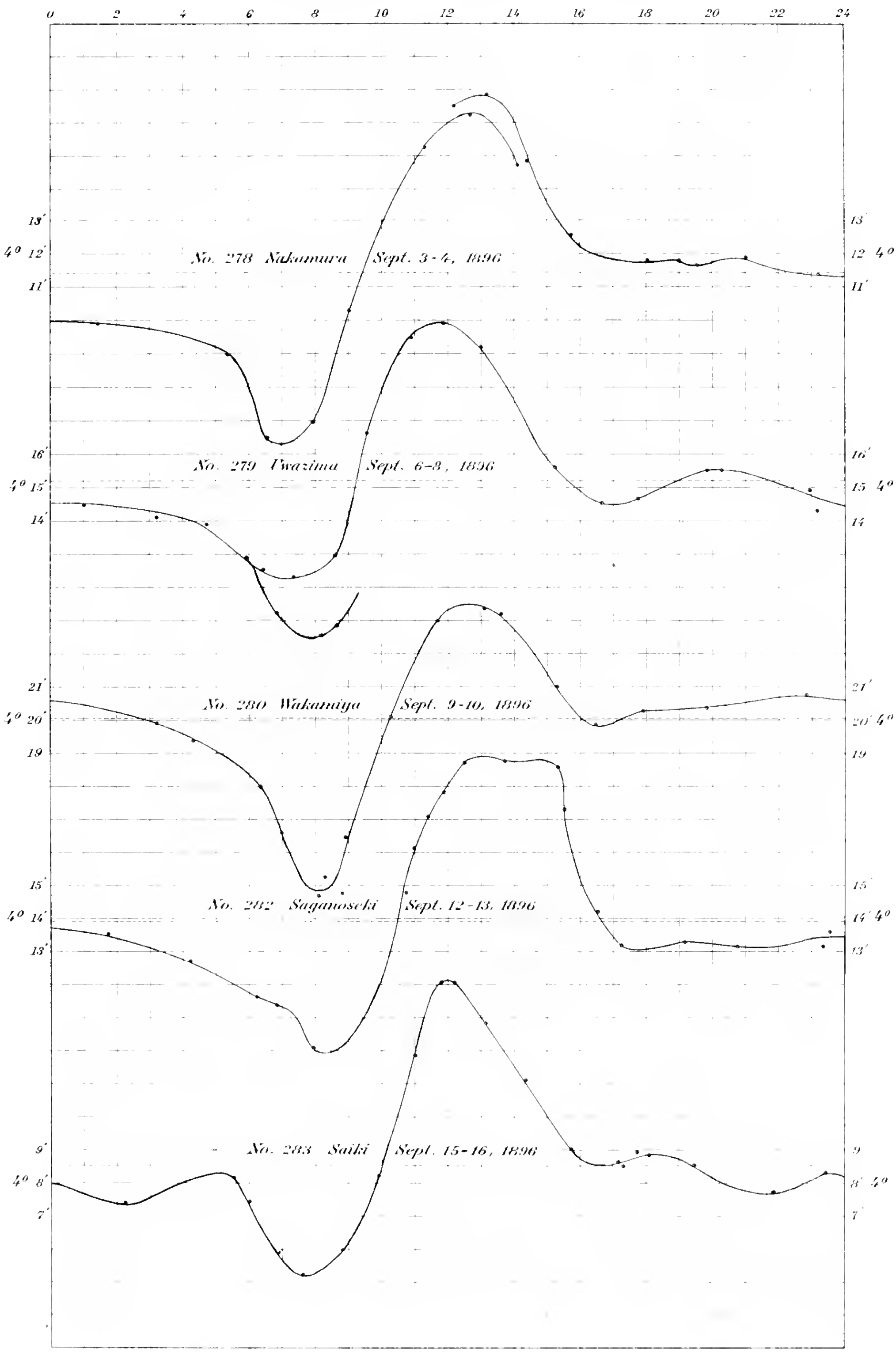
Observations of 1896 (Seto Sea Party)



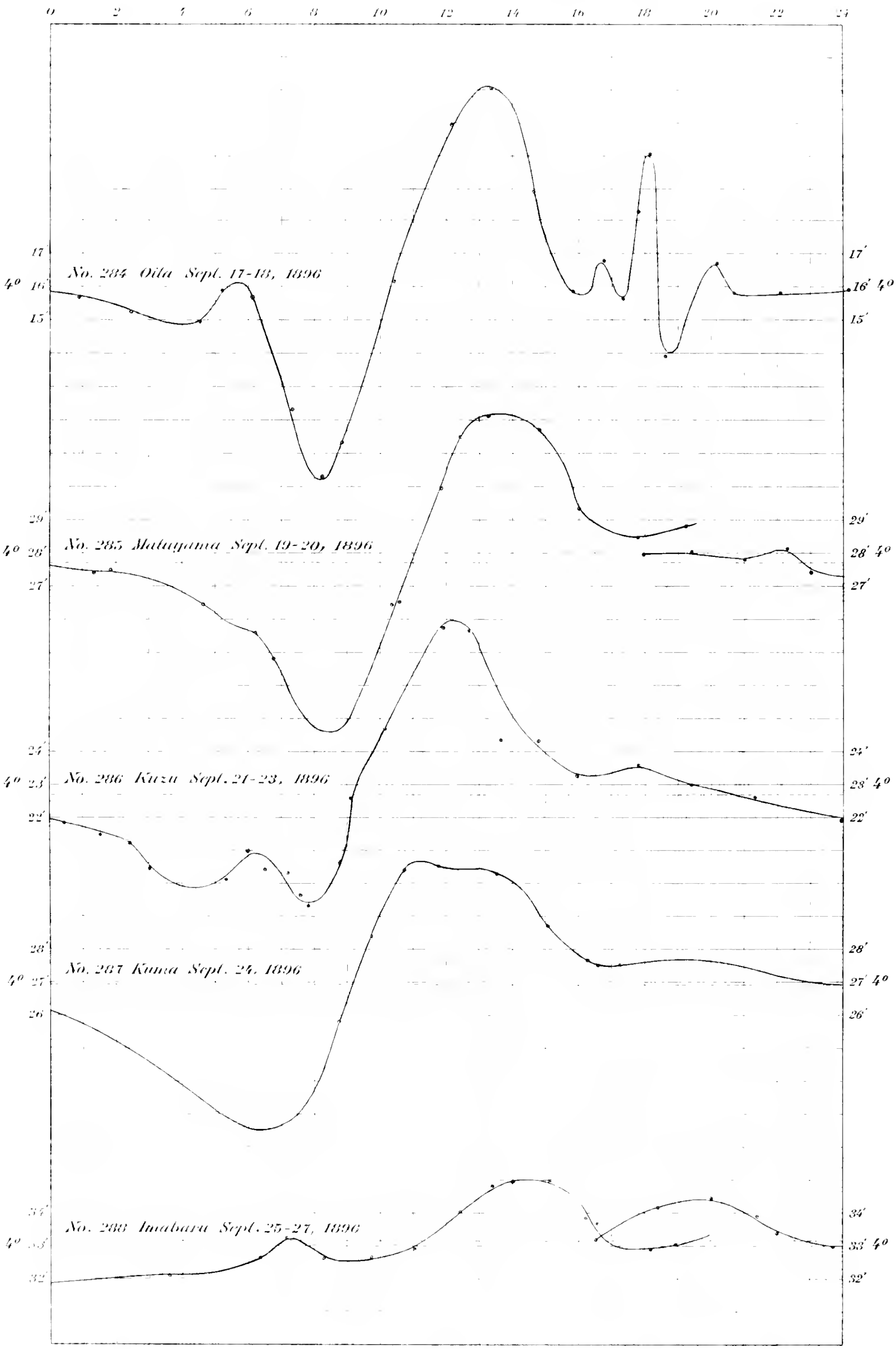
Observations of 1896 (Seto Sea Party)



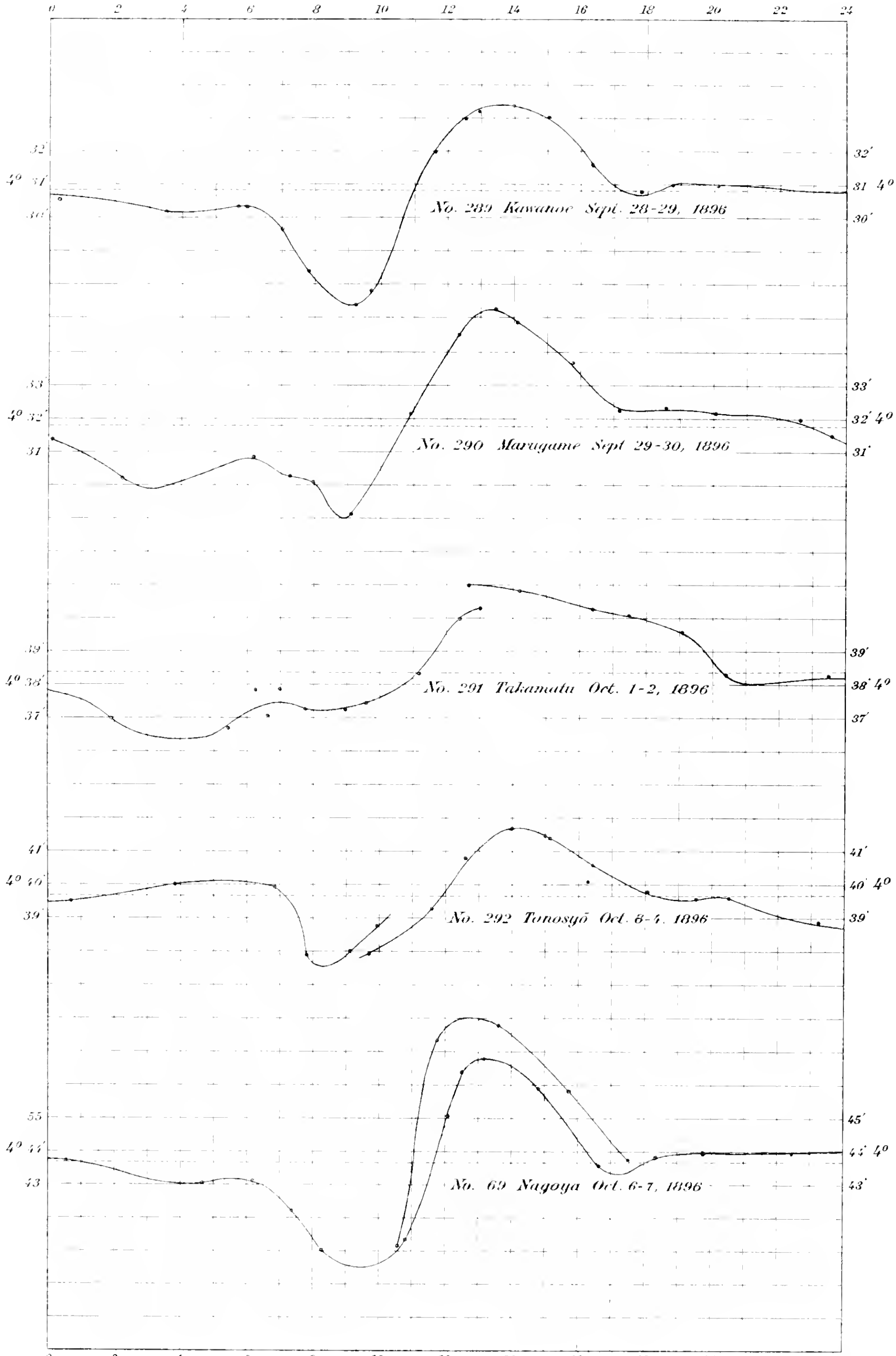
Observations of 1896 (Seto Sea Party)



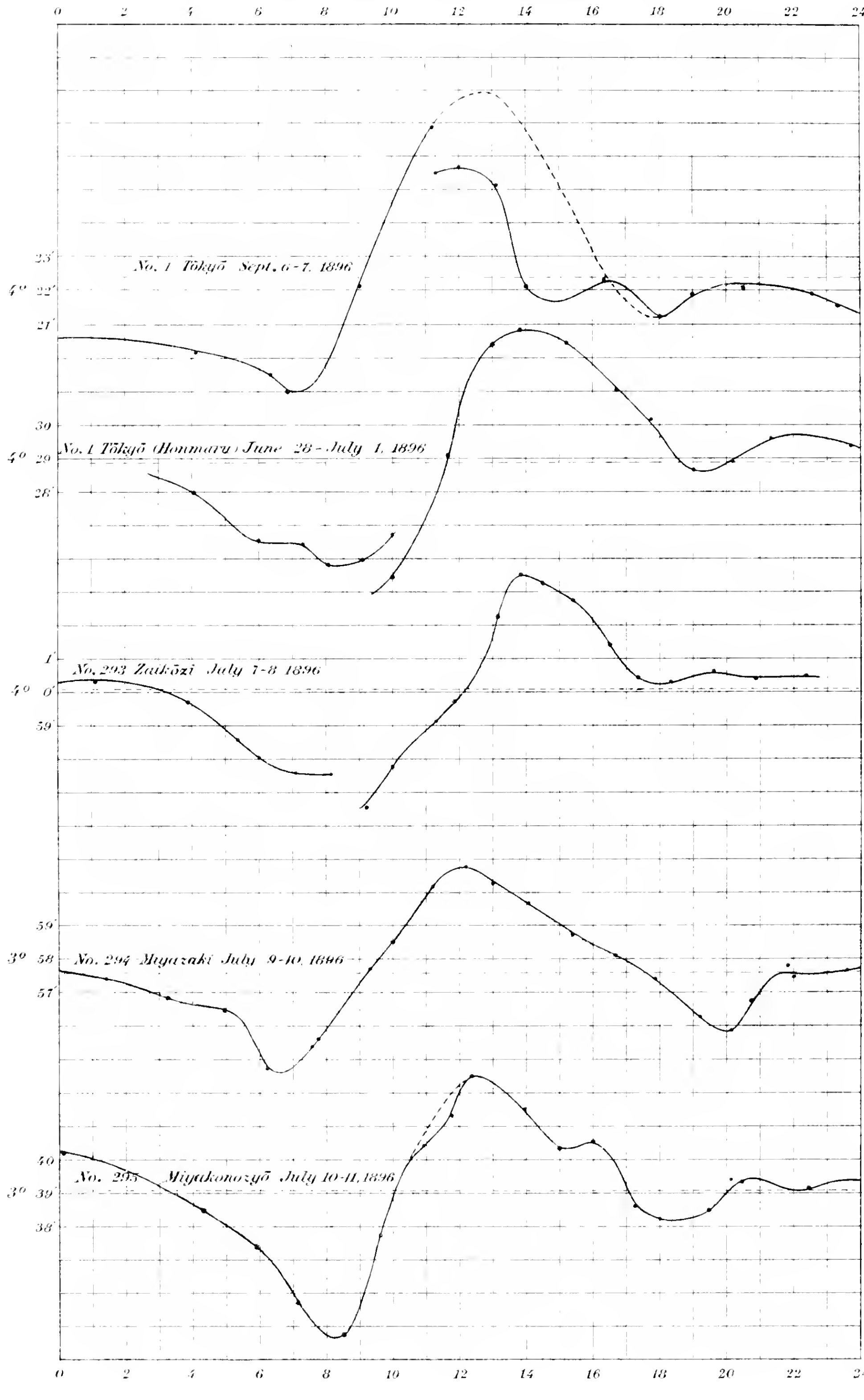
Observations of 1896 (Seto Sea Party)



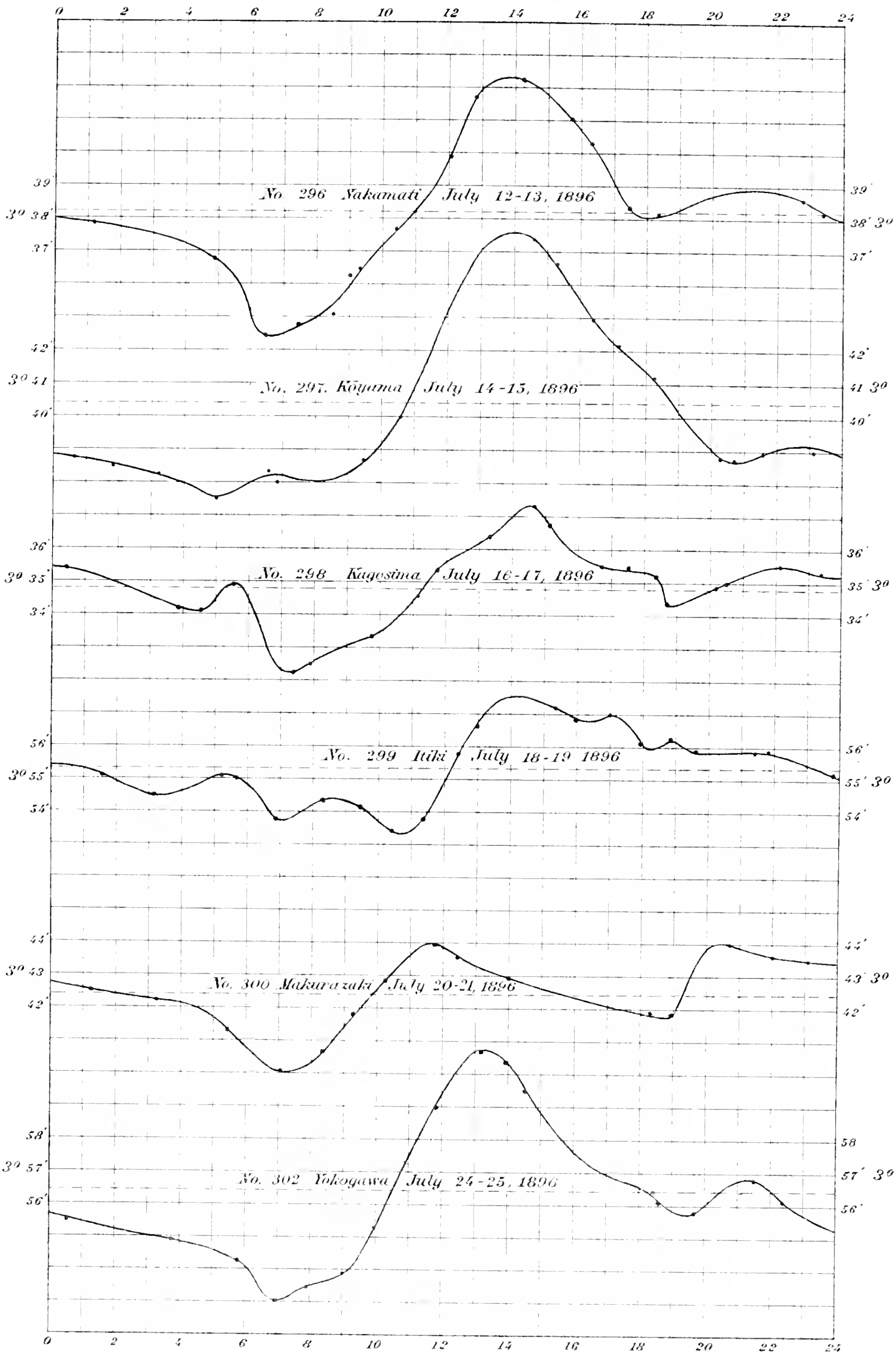
Observations of 1896 (Seto Sea Party)



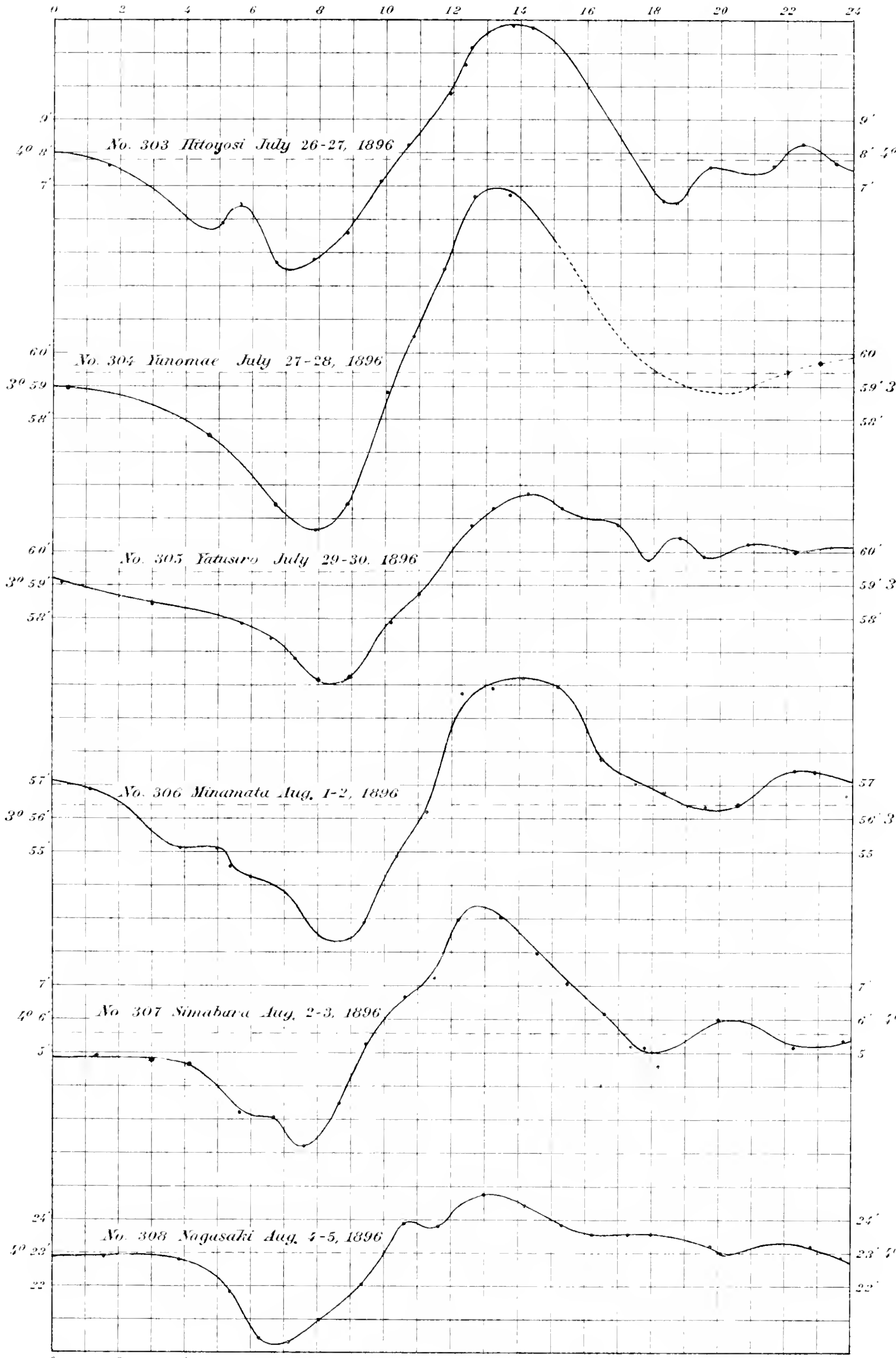
Observations of 1896 (South West Party)



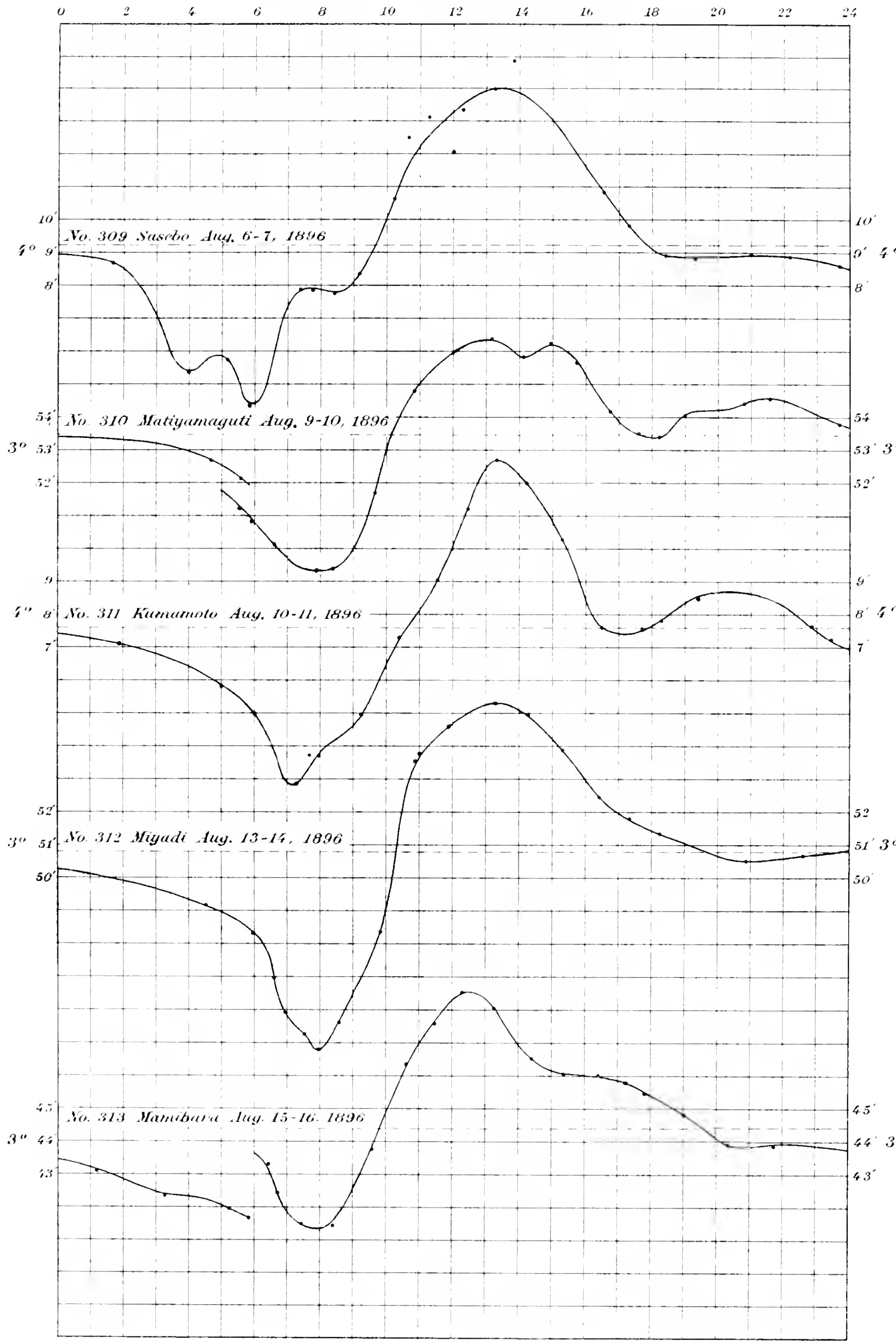
Observations of 1896 (South West Party)



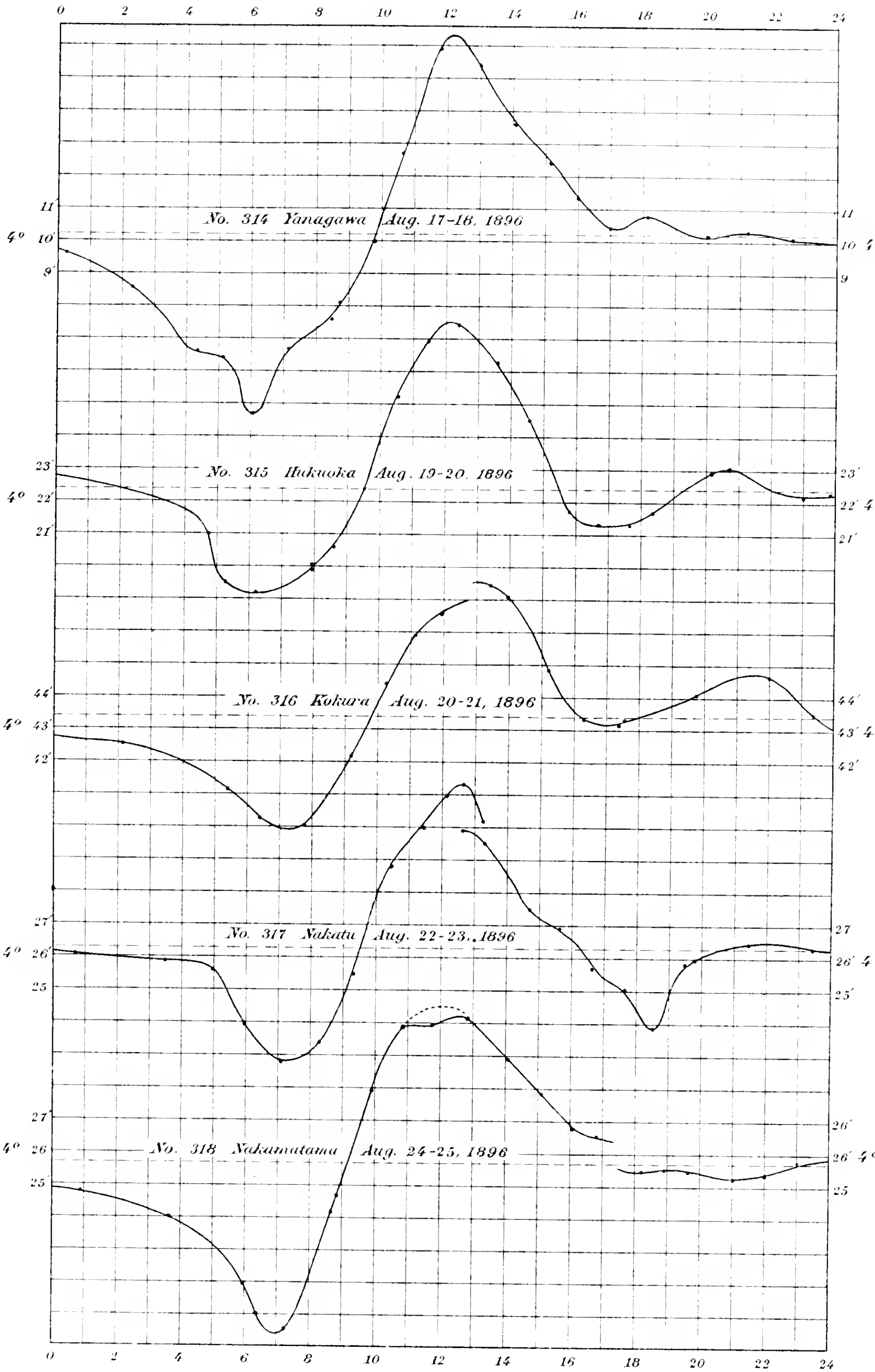
Observations of 1896 (South West Party)



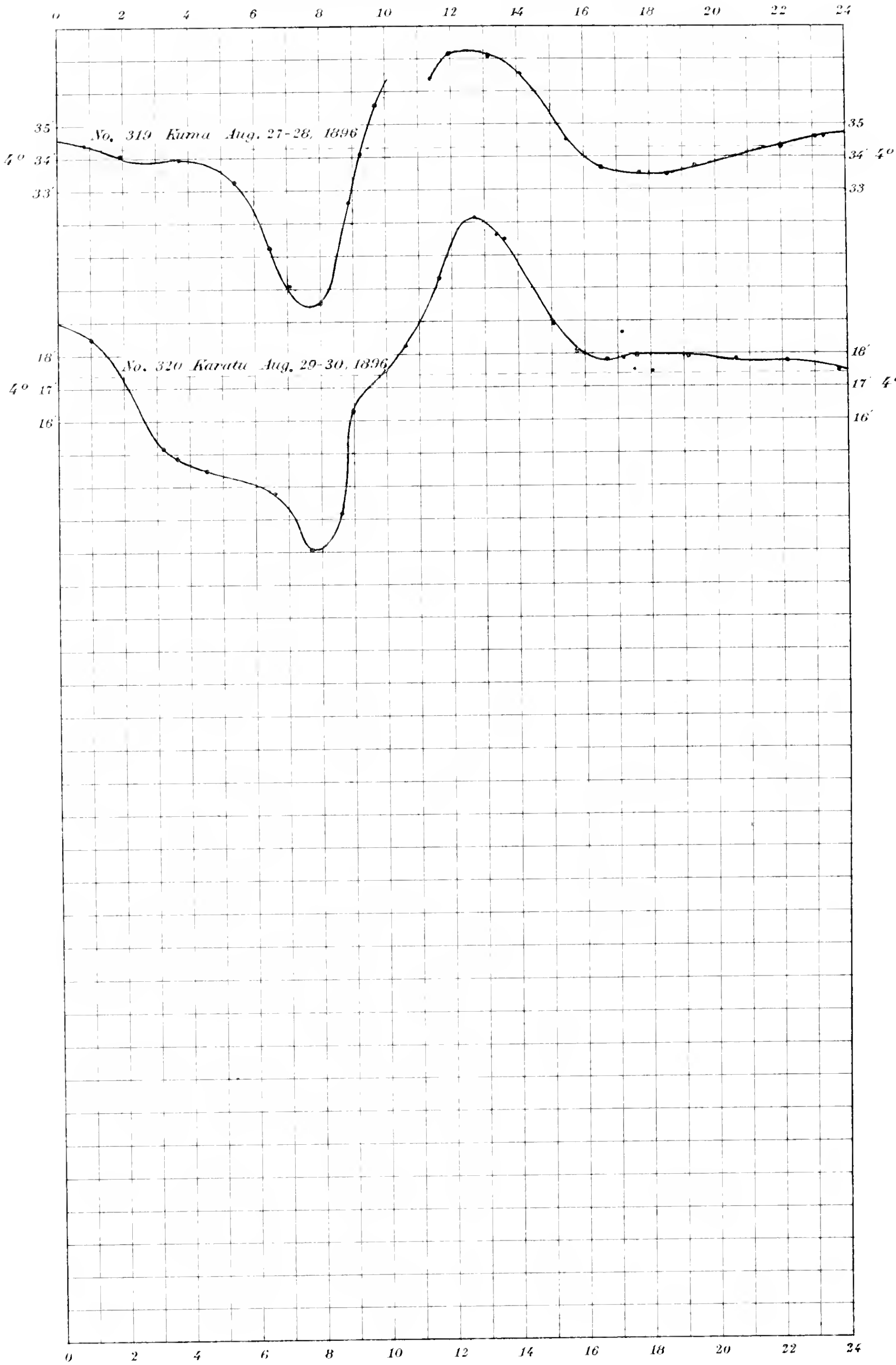
Observations of 1896 (South West Party)



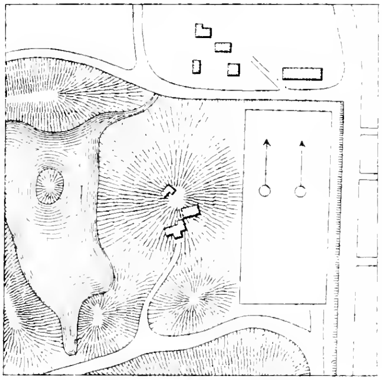
Observations of 1896 (South West Party)



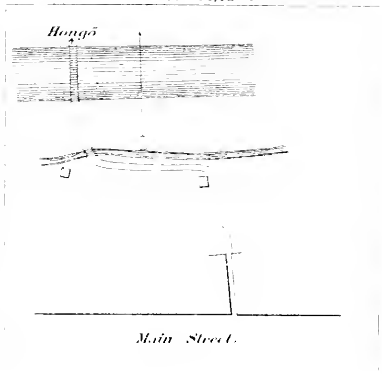
Observations of 1896 (South West Party)



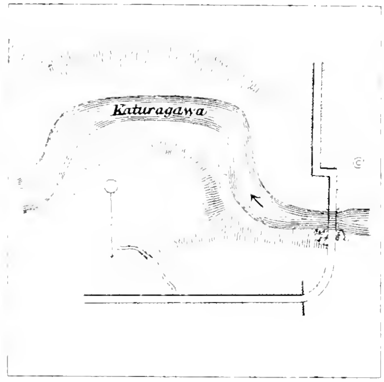
No. 1. Tōkyō.
1887, 1893, and following years.



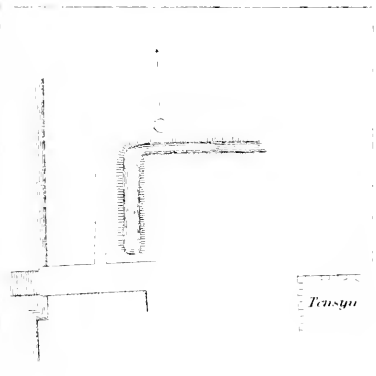
No. 2 Hatiōzi.
July 5 – 7. 1893
June 25 – 26, 1895



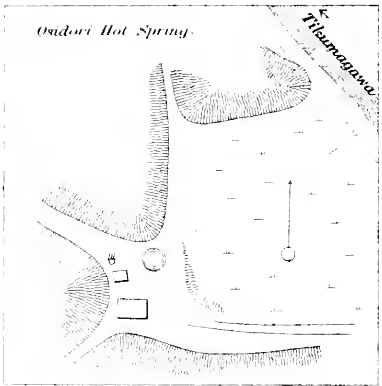
No. 3 Saruhasi.
July 8 – 9. 1893



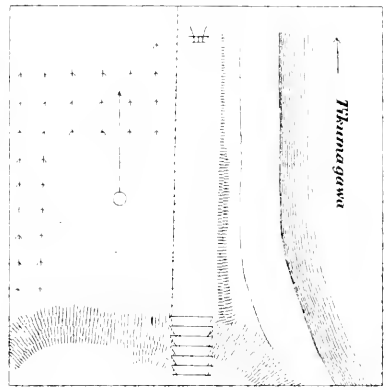
No. 4 Kōhu.
July 10 – 13. 1893



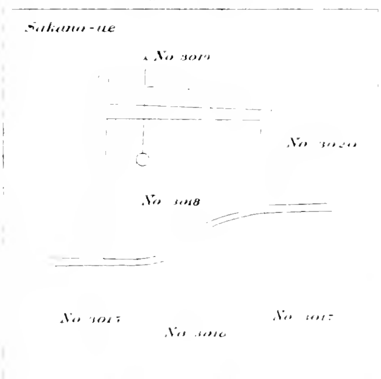
No. 5 Uminokuti.
July 14. 1893



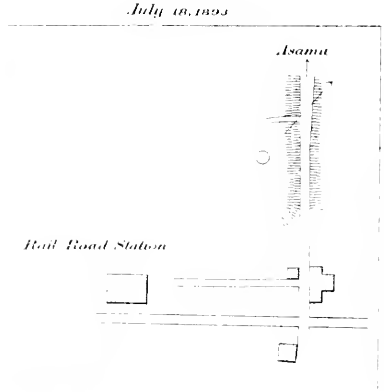
No. 6 Usuta.
July 15 – 16. 1893



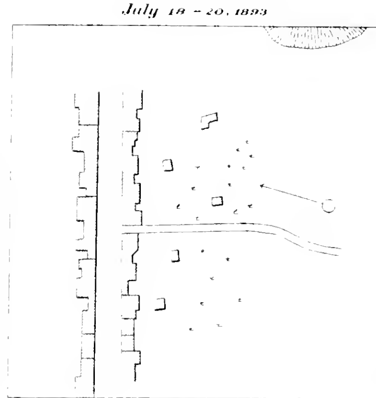
No. 7 Komoro.
July 17 – 18. 1893



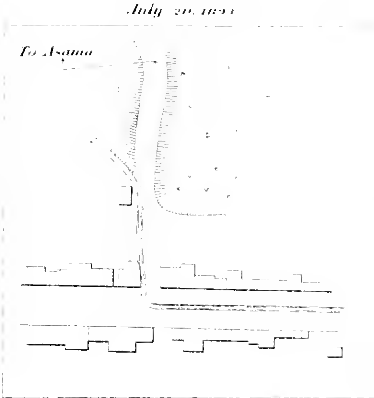
No. 8 Miyota.
July 18. 1893



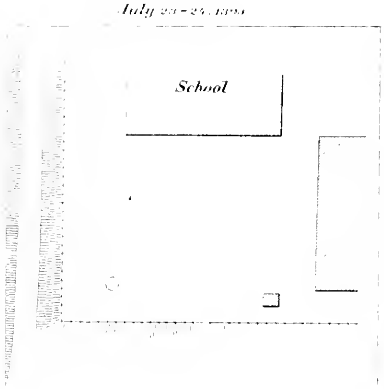
No. 9 Karuizawa.
July 18 – 20. 1893



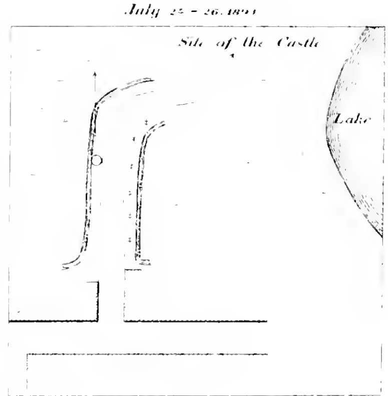
No. 10 Kutukake.
July 20. 1893



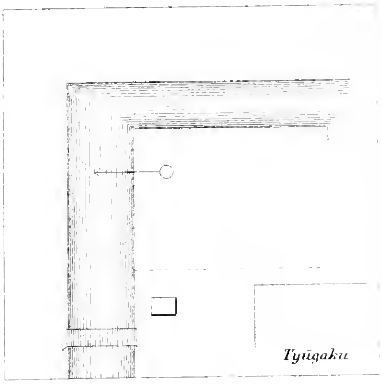
No. 11 Ueda.
July 23 – 25. 1893



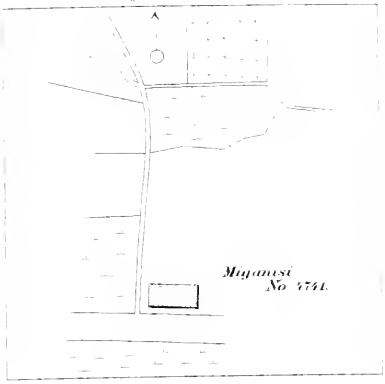
No. 12 Kamisuwa.
July 25 – 26. 1893



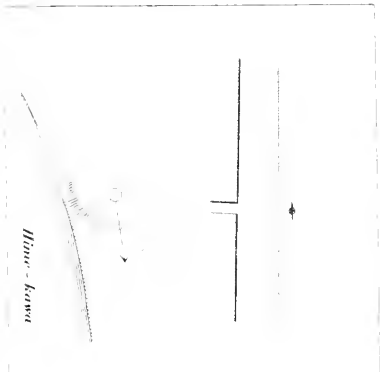
No. 13 Matumoto.
July 27-30, 1893



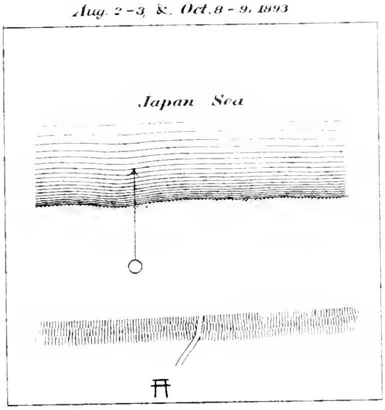
No. 14 Ōmati.
July 30-Aug. 1, 1893



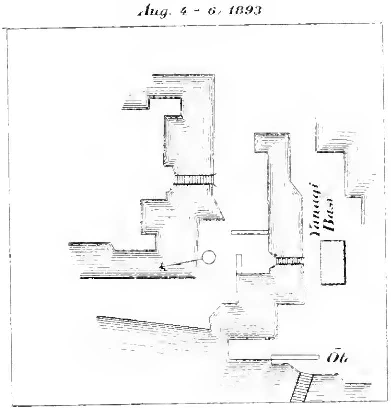
No 15 Kuruma.
Aug 1-2, 1893



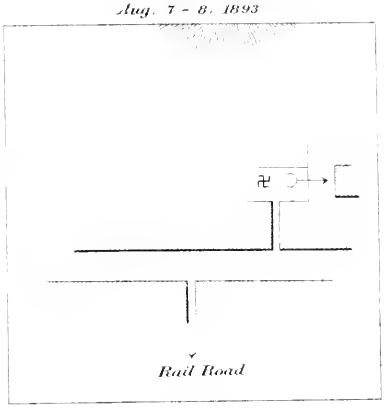
No. 16 Itoigawa.
Aug. 2-3, &. Oct. 8-9, 1893



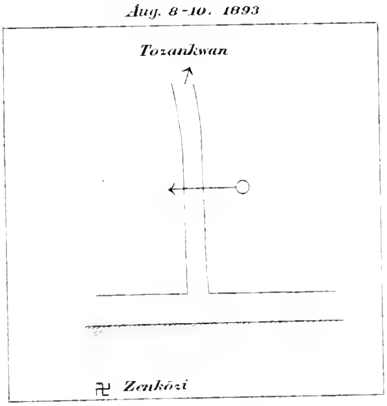
No. 17 Takata.
Aug. 4-6, 1893



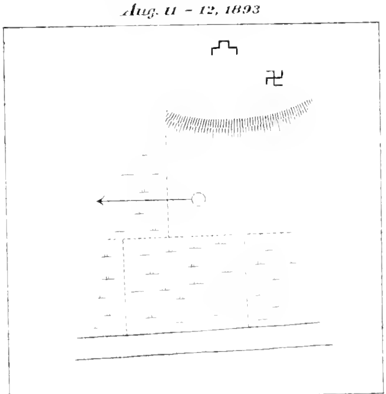
No. 18 Sekiyama.
Aug. 7-8, 1893



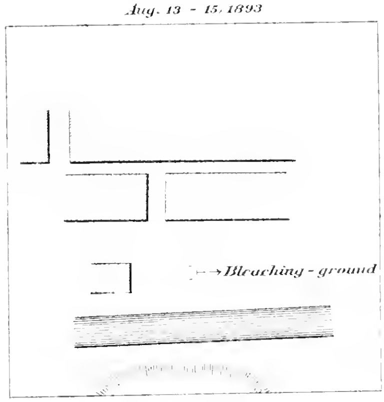
No. 19 Nagano.
Aug. 8-10, 1893



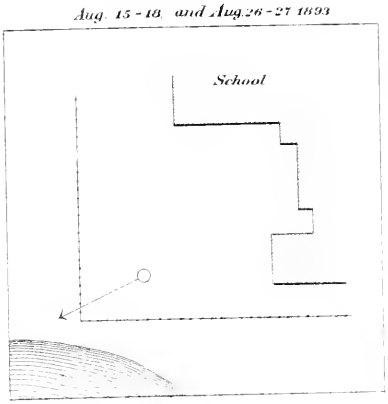
No 20 Iiyama.
Aug. 11-12, 1893



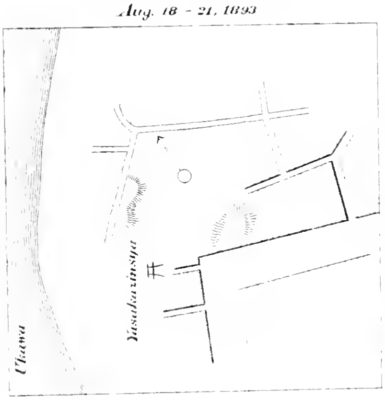
No. 21 Tōkamati.
Aug. 13-15, 1893



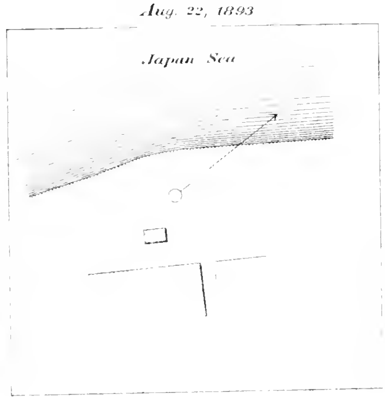
No. 22 Nagaoka.
Aug. 15-18, and Aug. 26-27 1893



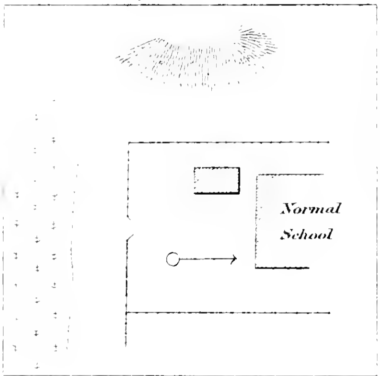
No. 23 Kasiwazaki.
Aug. 18-21, 1893



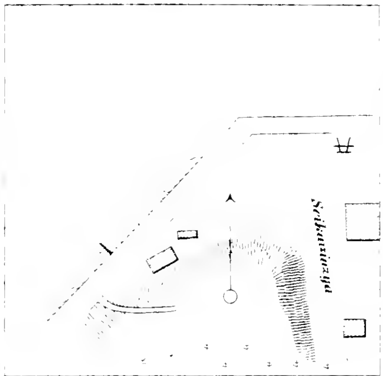
No. 24 Teradomari.
Aug. 22, 1893



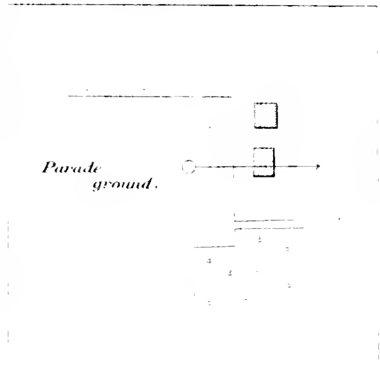
No. 25 Niigata
Aug. 23 - 25, 1893



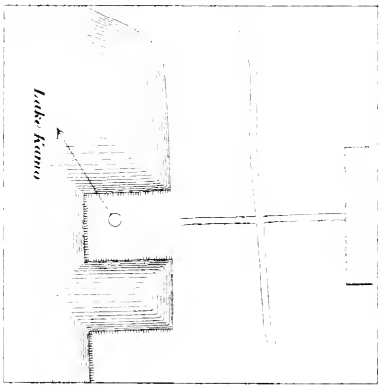
No. 26 Kamo
Aug. 28, 1893



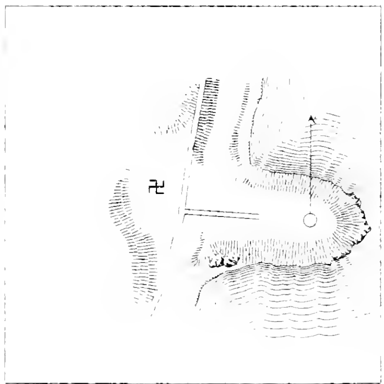
No. 27 Sibata
Aug. 29 - 30 1893



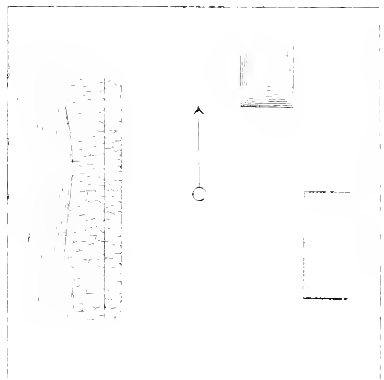
No. 28 Ebisu.
Aug. 31 - Sept. 1 1893



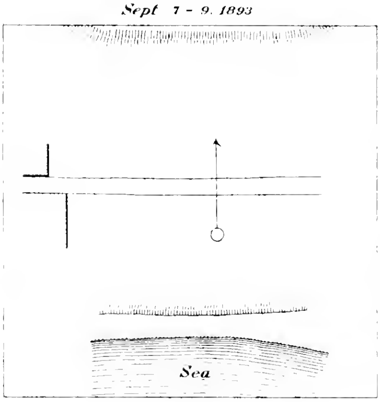
No. 29 Wasizaki.
Sept. 2 - 3. 1893



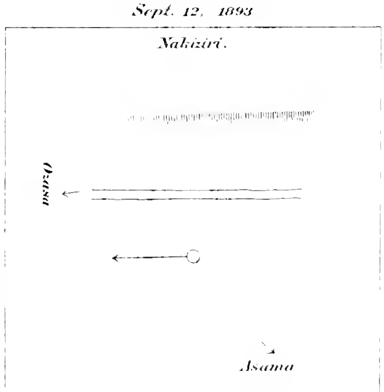
No. 30 Aikawa.
Sept. 6 - 7. 1893



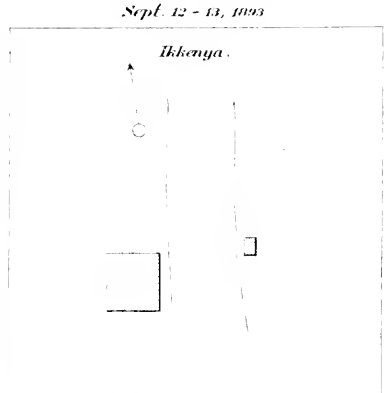
No. 31 Ogi.
Sept 7 - 9. 1893



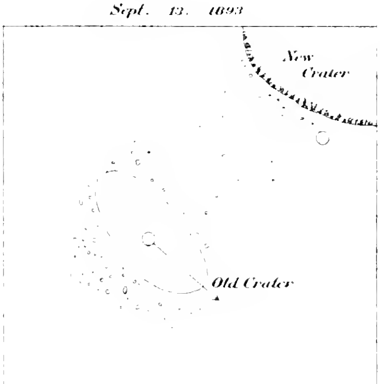
No. 32 Ōzasa.
Sept. 12, 1893



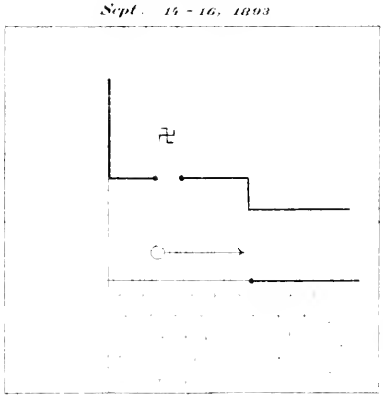
No. 33 Wakasare.
Sept. 12 - 13, 1893



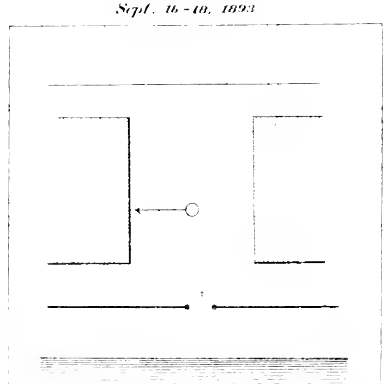
No. 34 Asama.
Sept. 13. 1893



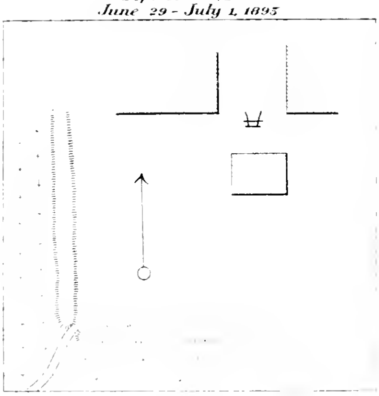
No. 35 Matuida.
Sept. 14 - 16, 1893



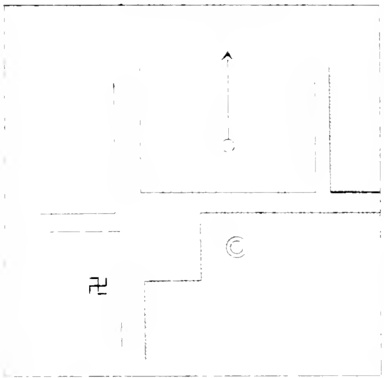
No. 36 Takasaki
Sept. 16 - 18, 1893



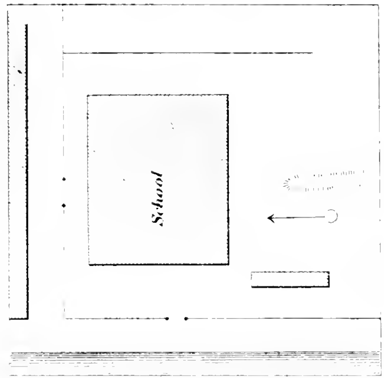
No. 37 Numata.
Sept 19 - 20, 1893
June 29 - July 1, 1895



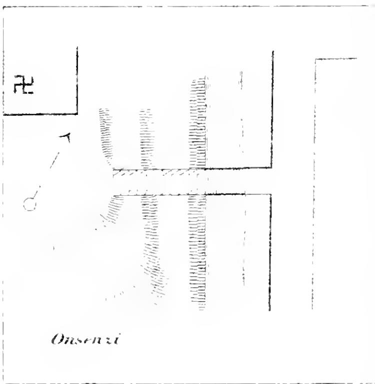
No. 38 Kumagai.
Sept. 21 - 22, 1893



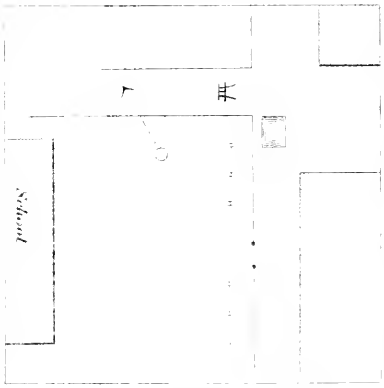
No. 39 Odawara.
Sept. 26 - 28, 1893



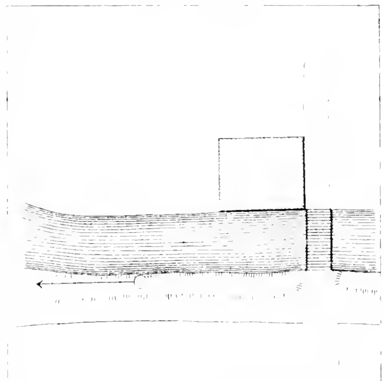
No. 40 Atami.
Oct. 2 - 3, 1893



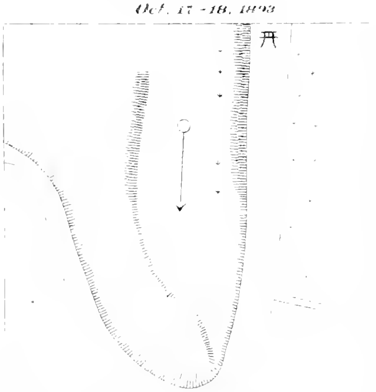
No. 41 Simoda.
Oct. 7 - 8, 1893



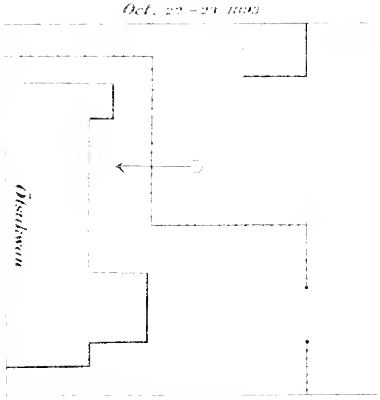
No. 42 Matuzaki.
Oct. 11 - 12, 1893



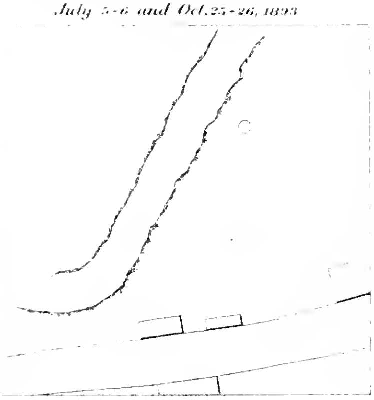
No. 43 Hudisawa.
Oct. 17 - 18, 1893



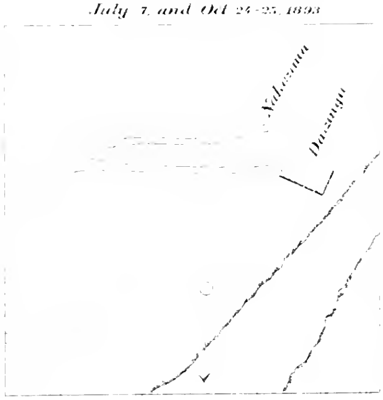
No. 44 Ôtu.
Oct. 22 - 23, 1893



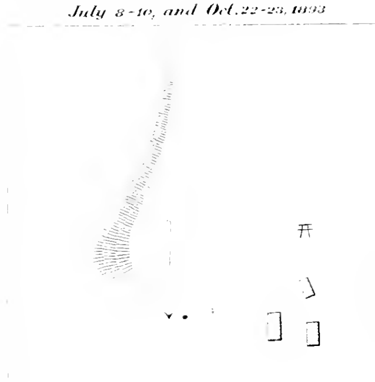
No. 45 Midono.
July 5 - 6 and Oct. 25 - 26, 1893



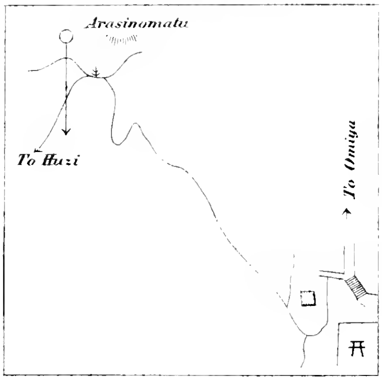
No. 46 Yosida.
July 7, and Oct 24 - 25, 1893



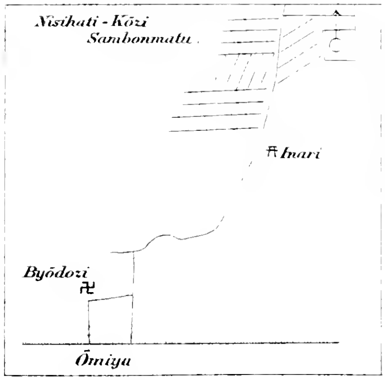
No. 47 Umagaesi.
July 8 - 10, and Oct. 22 - 23, 1893



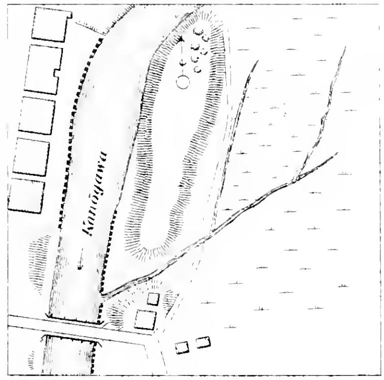
No. 52 Murayama.
July 15, and Oct. 19-20, 1893



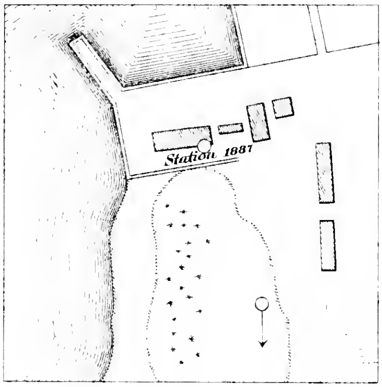
No. 62 Ōmiya
July 19-20, and Oct. 18. 1893



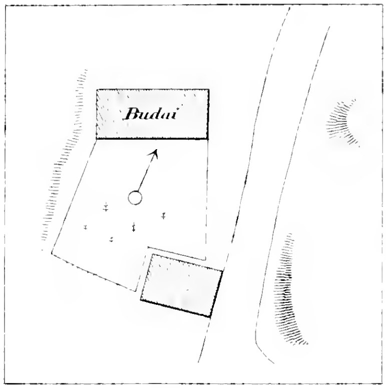
No. 63 Numazu.
July 21-22 and Oct. 26-27 1893



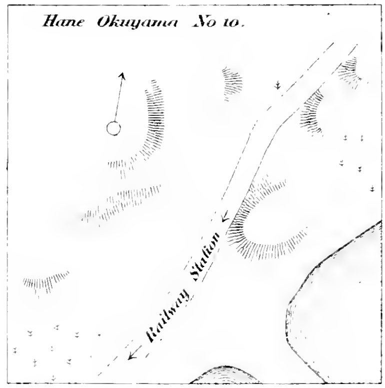
No. 64 Simizu.
July 22-23, and Oct 16-17, 1893



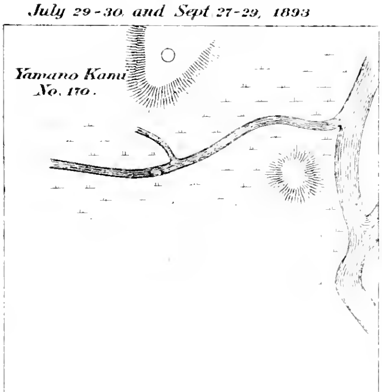
No. 65 Nisinoto.
July 26-27, and Oct. 13-14. 1893



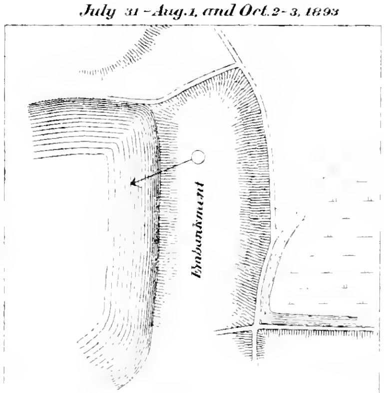
No 66 Okazaki.
July 28-29, and Oct. 3-4. Oct. 15, 1893



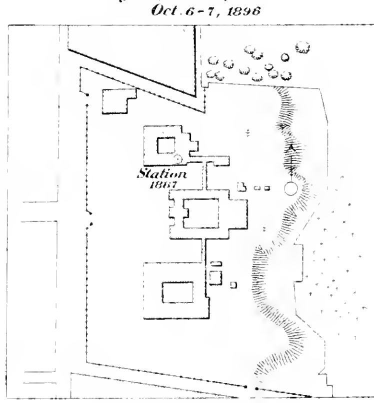
No. 67 Kōwa.
July 29-30. and Sept 27-29, 1893



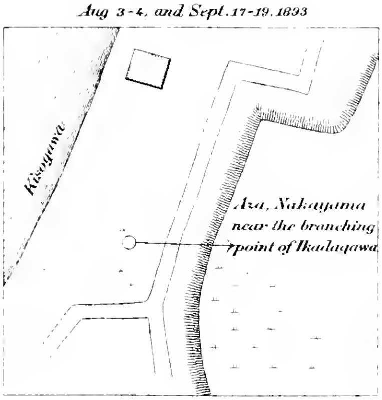
No. 68 Narumi.
July 31 - Aug. 1, and Oct. 2-3, 1893



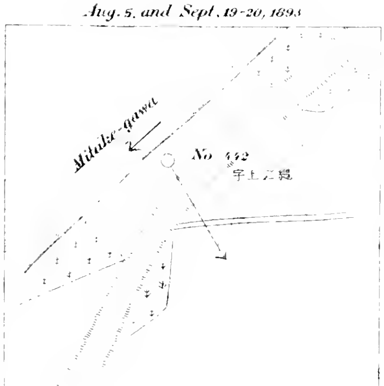
No. 69 Nagoya.
Aug 1-3, and Sept. 16. 1893
Oct. 6-7, 1896



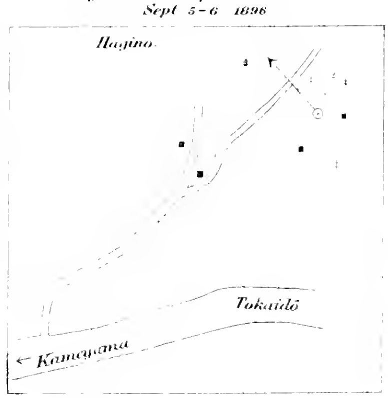
No. 70 Maegasu.
Aug 3-4, and Sept. 17-19. 1893



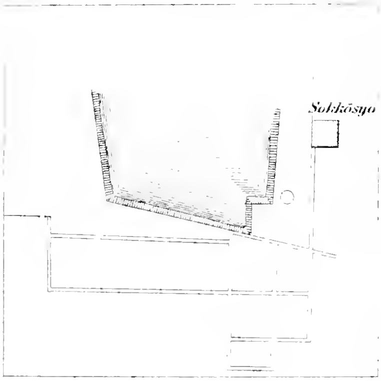
No. 71 Yokkaiti.
Aug. 5, and Sept. 19-20, 1893



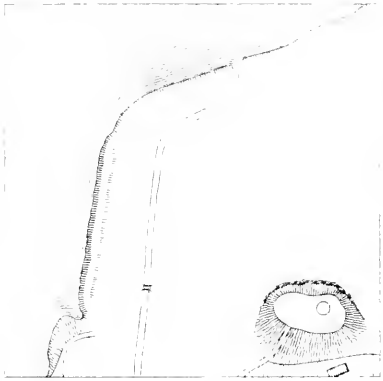
No. 72 Kameyama.
Aug 6-7, and Sept 20-22 1893
Sept 5-6 1896



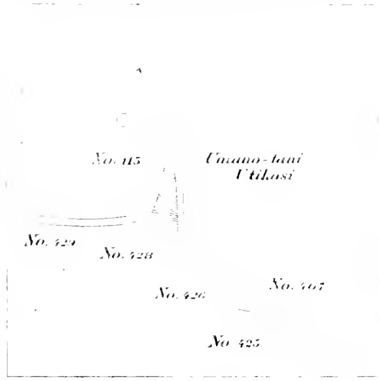
No. 73 Tu
Aug 7-8, and Sept. 22-23. 1893



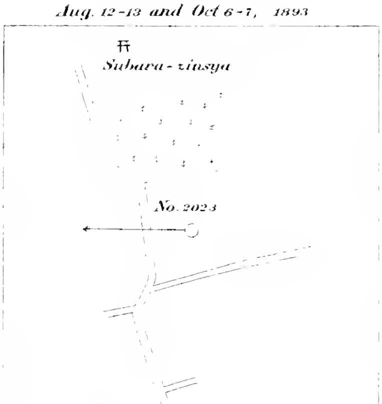
No. 74 Kamigosiro.
Aug. 8-9, and Sept. 23-24. 1893



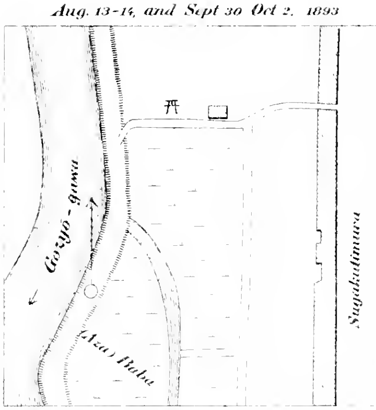
No. 75 Toba
Aug. 9-10, and Sept. 25-26 1893



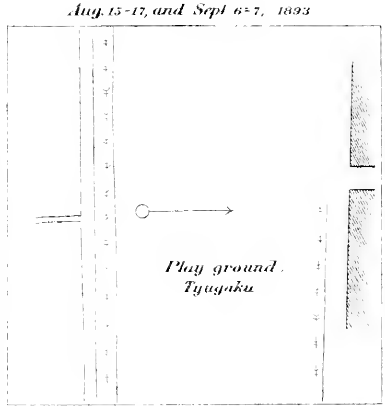
No. 76 Katikawa.
Aug. 12-13 and Oct 6-7, 1893



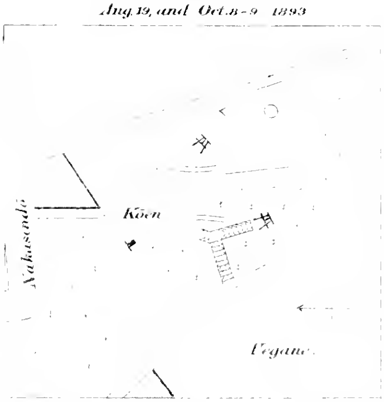
No. 77 Kiyosu.
Aug. 13-14, and Sept 30 Oct 2. 1893



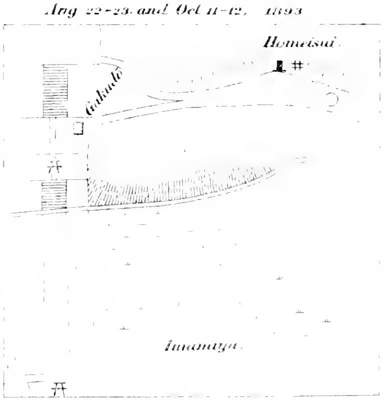
No. 78 Gihu.
Aug. 15-17, and Sept 6-7, 1893



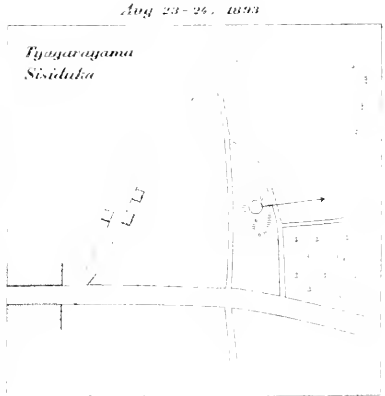
No. 79 Nakatugawa.
Aug. 19, and Oct. 8-9 1893



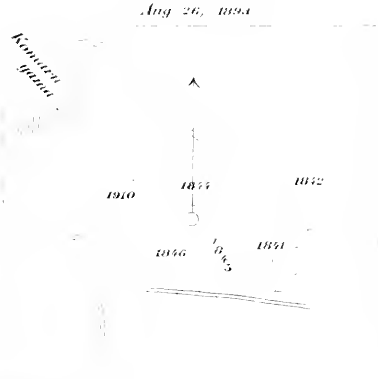
No. 80 Iida.
Aug 22-23, and Oct 11-12, 1893



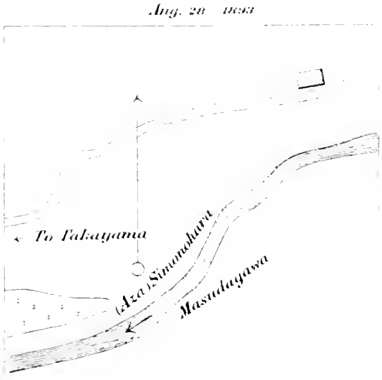
No. 81 Matuo.
Aug 23-24, 1893



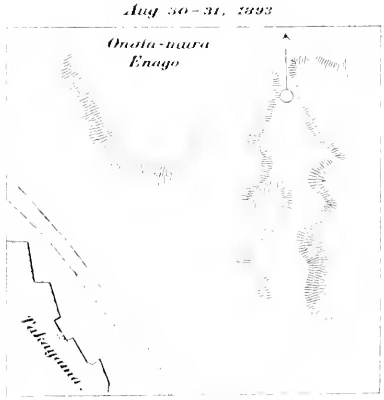
No. 82 Fukusima
Aug 26, 1893



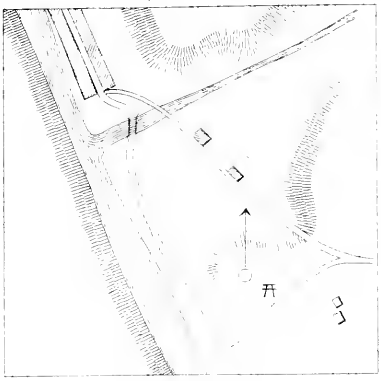
No. 83 Nomugi.
Aug. 28 1893



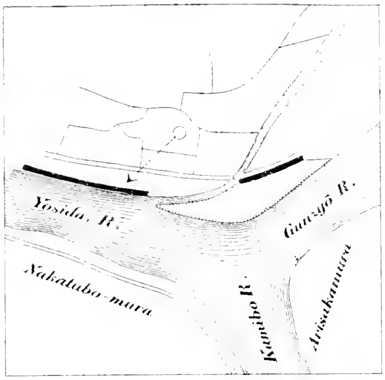
No. 84 Takayama.
Aug 30-31, 1893



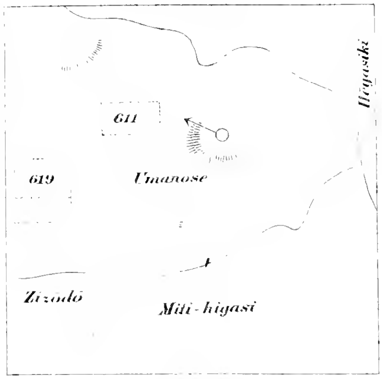
No. 85 Gero.
Sept. 1–2, 1893



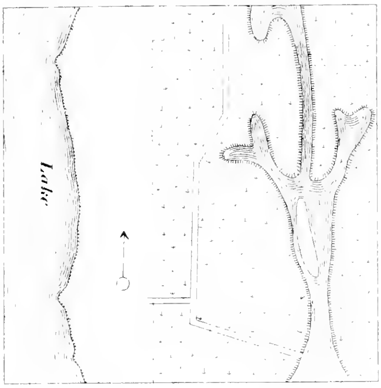
No. 86 Haliman.
Sept. 4, 1893



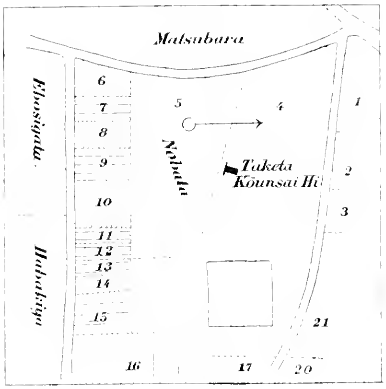
No. 87 Nagamine.
Sept. 8, 1893



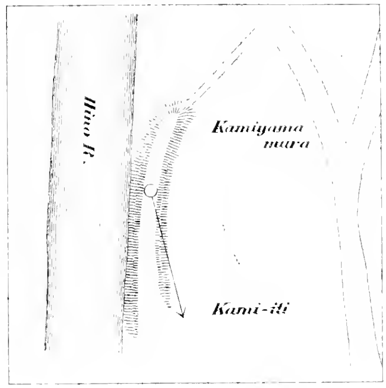
No. 88 Nagahama.
Sept. 9–10, 1893



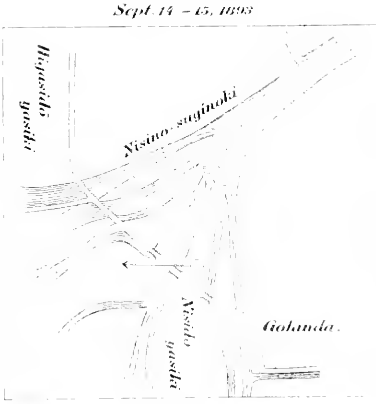
No. 89 Turuga.
Sept. 11, 1893



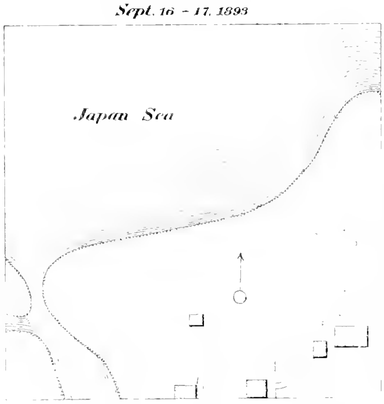
No. 90 Takehu.
Sept. 12–13, 1893



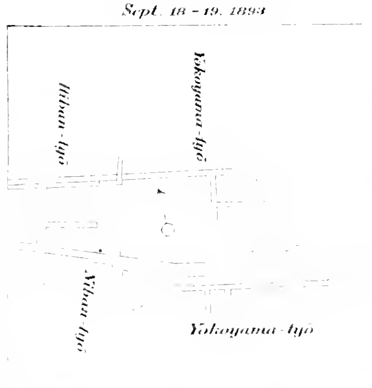
No. 91 Ôno.
Sept. 14–15, 1893



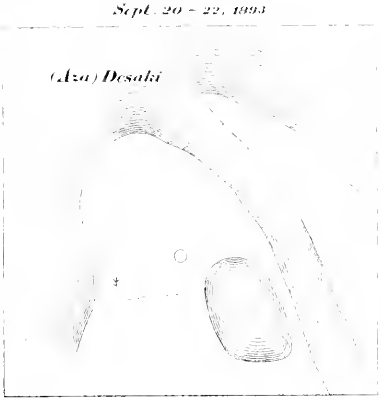
No. 92 Sioya.
Sept. 16–17, 1893



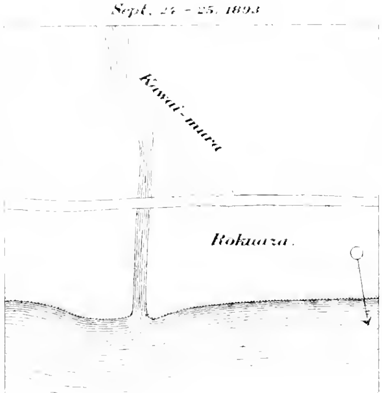
No. 93 Kanazawa.
Sept. 18–19, 1893



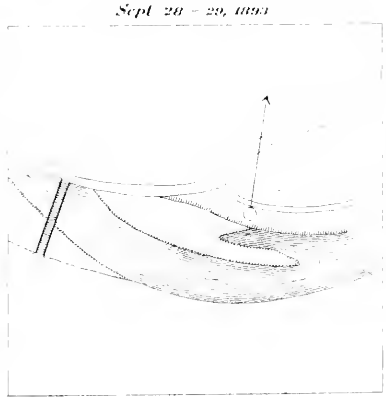
No. 94 Nanao.
Sept. 20–22, 1893



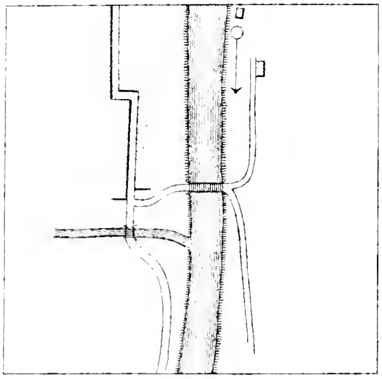
No. 95 Wazima.
Sept. 24–25, 1893



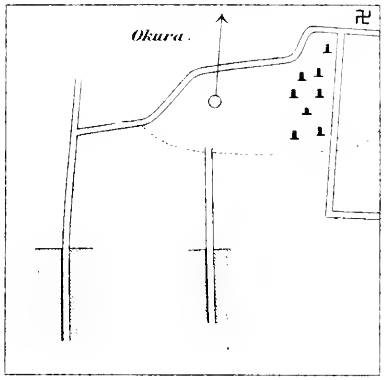
No. 96 Toyama.
Sept. 28–29, 1893



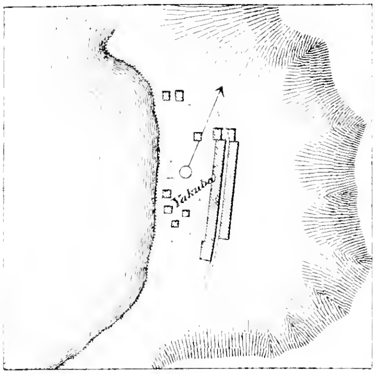
No. 97 Mozumi.
Oct 1-3, 1893



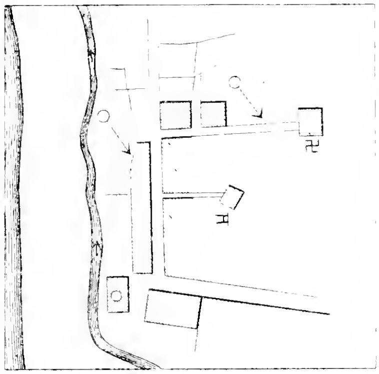
No. 98 Mikkaiti.
Oct. 5-6. 1893



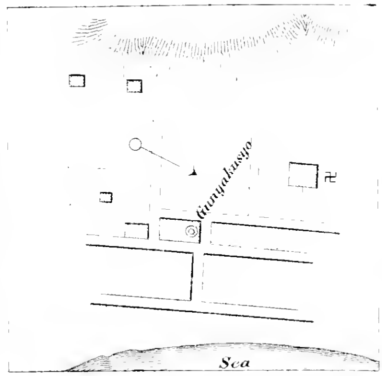
No. 99 Abuta
July 1 – 2, 1894



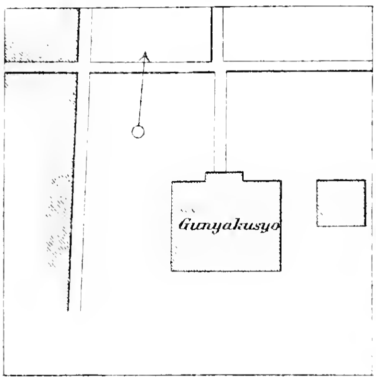
No. 100 Osyamanbe
July 4 – 7, 1894



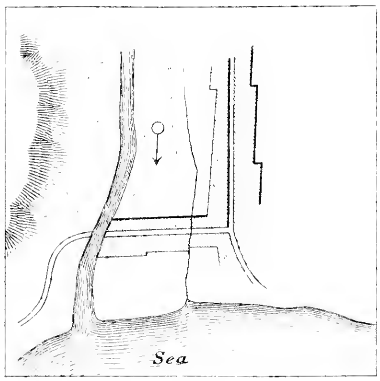
No. 101 Suttu
July 8 – 9 1894



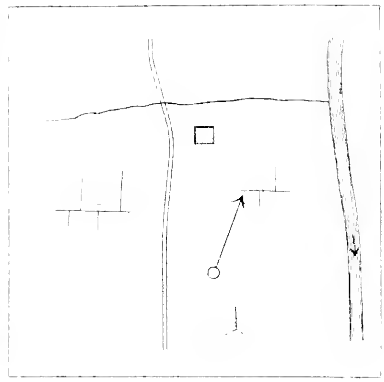
No. 102 Iwanai
July 11 – 12, 1894



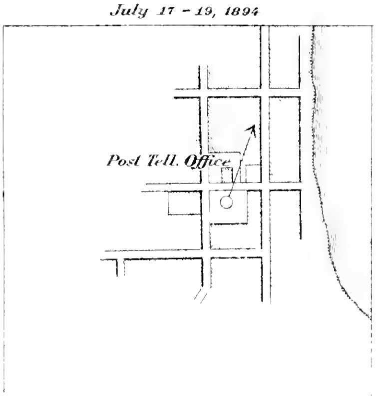
No. 103 Yobetu
July 13 – 14, 1894



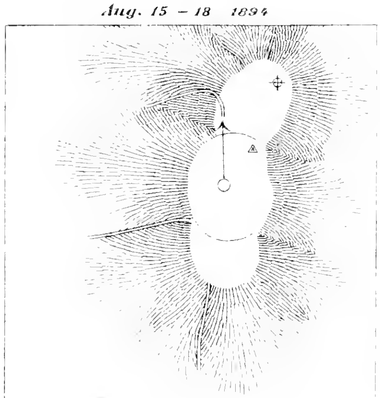
No. 104 Hanama
July 15 – 16, 1894



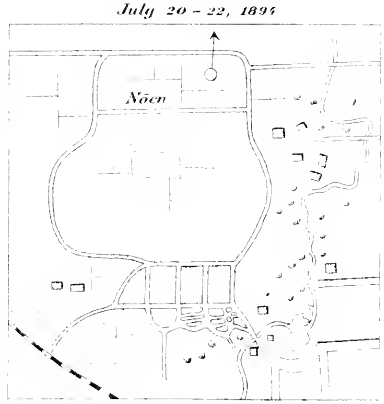
No. 105 Otaru
July 17 – 19, 1894



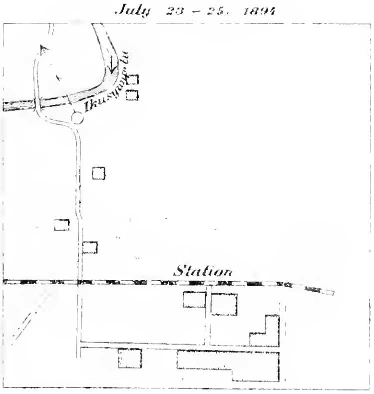
No. 106 Otaru Myōkensan
Aug. 15 – 18 1894



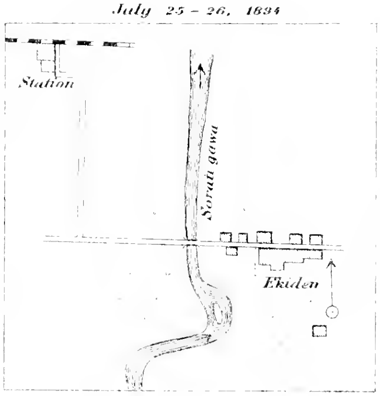
No. 107 Sapporo
July 20 – 22, 1894



No. 108 Iwamizawa
July 23 – 25, 1894

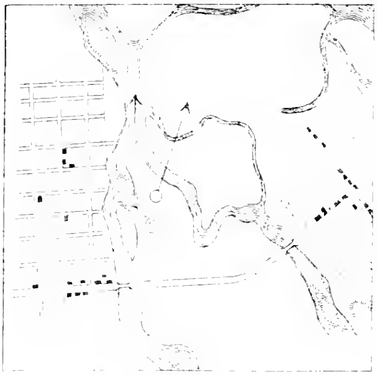


No. 109 Soratipt.
July 25 – 26, 1894

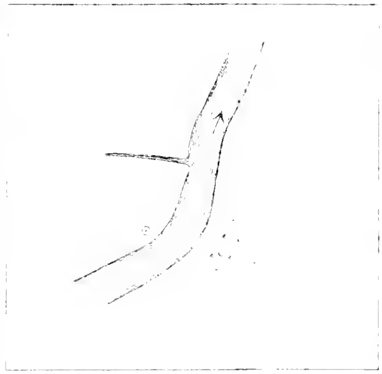


No. 110 Tip-yabusi
July 29 – 30, 1894

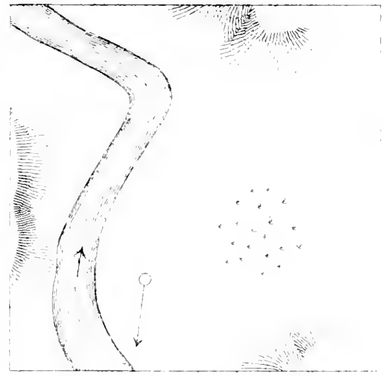
No. 111 Asahikawa
Aug. 1 – 2, 1894



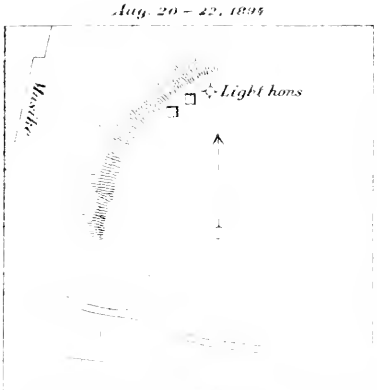
No. 112 Ohotukawa
Aug. 3 – 4, 1894



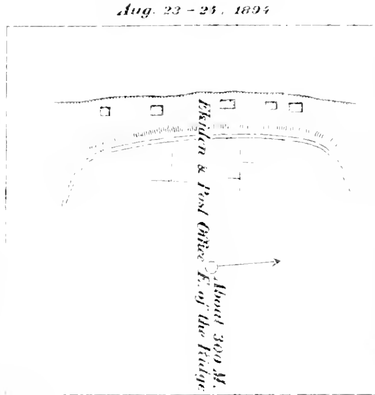
No. 113 Porokamuikotan
Aug. 6 – 7, 1894



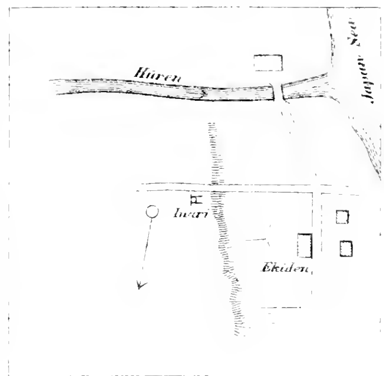
No. 114 Masike
Aug. 20 – 22, 1894



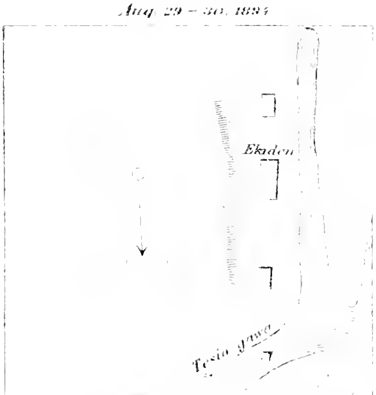
No. 115 Sirasitomari
Aug. 23 – 24, 1894



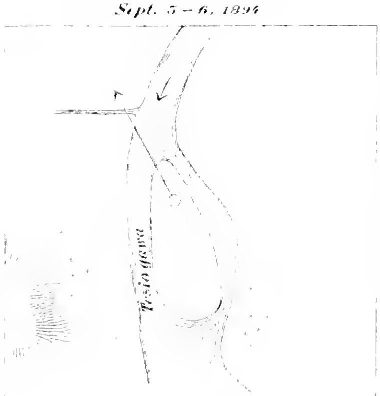
No. 116 Hūren
Aug. 25 – 26, 1894



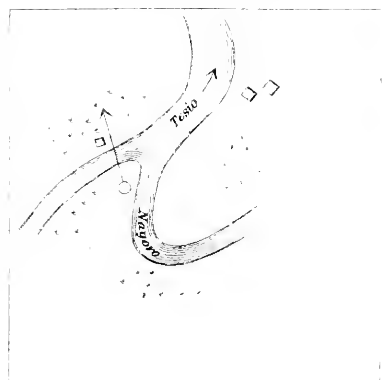
No. 117 Tesio
Aug. 29 – 30, 1894



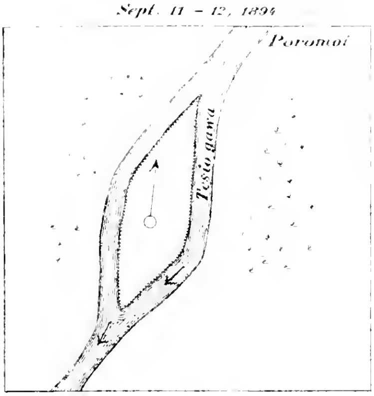
No. 119 Okurumatomanai
Sept. 5 – 6, 1894



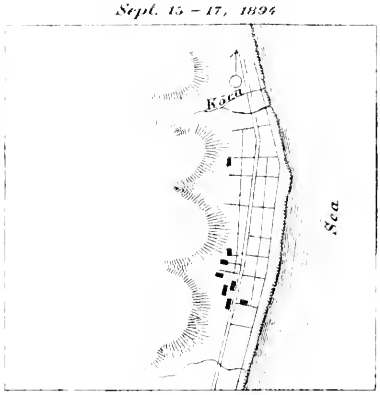
No. 120 Nayoropt
Sept. 8 – 9, 1894



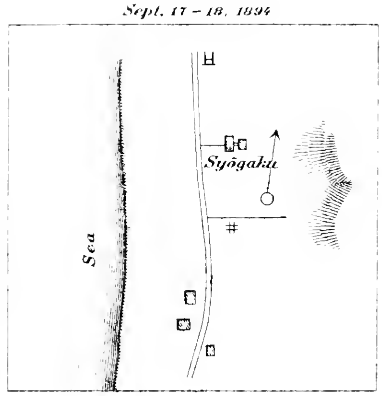
No. 121 Nuppa-mamoi
Sept. 11 – 12, 1894



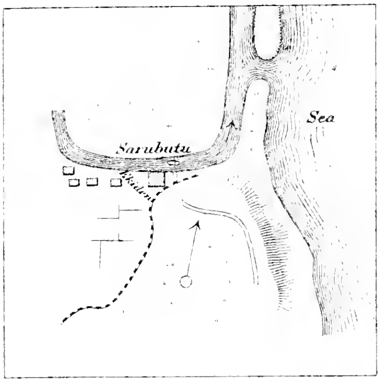
No. 123 Wakkanai
Sept. 15 – 17, 1894



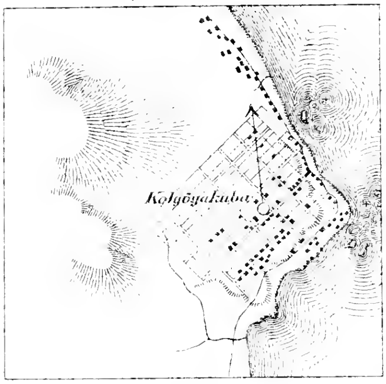
No. 124 Sōya
Sept. 17 – 18, 1894



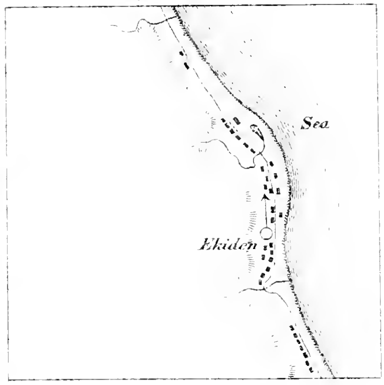
No. 125 Sarubutu
Sept. 20 – 21, 1894



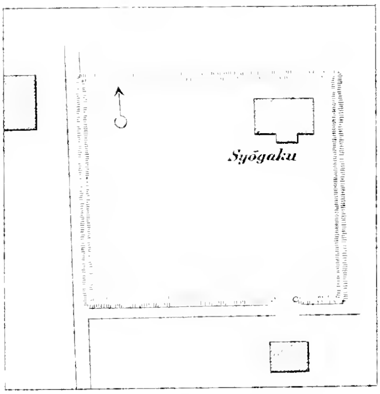
No. 126 Esasi
Sept. 22 – 23, 1894



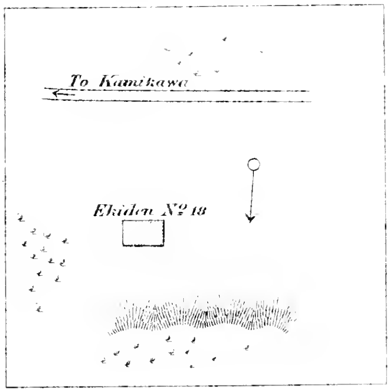
No. 127 Poronai
Sept. 25 – 26, 1894



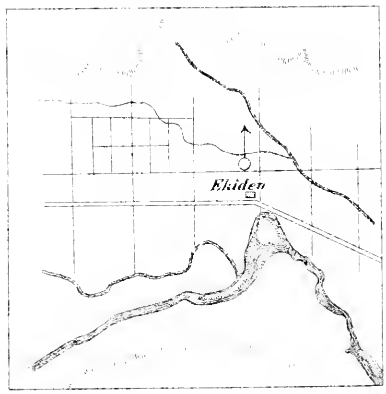
No. 128 Monbetu
Sept. 27 – 28, 1894



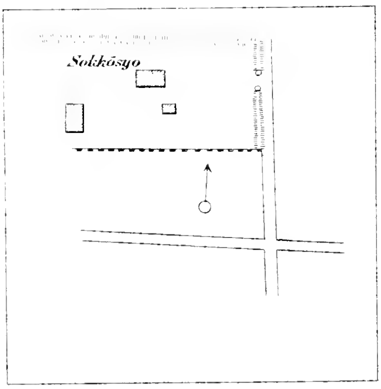
No. 130 Nogami
Sept. 30 – Oct. 1, 1894



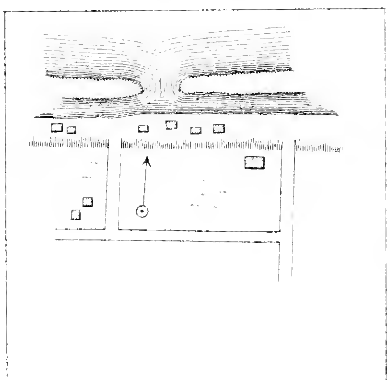
No. 131 Ainonai
Oct. 2 – 3, 1894



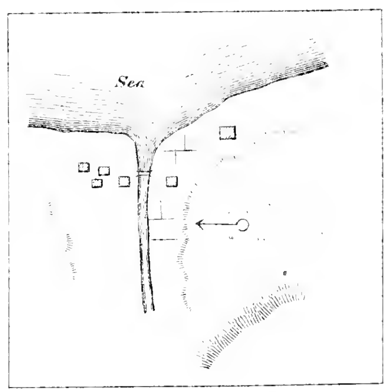
No. 132 Abasiri
Oct. 4 – 5, 1894



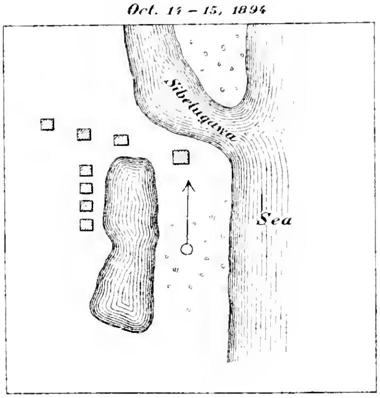
No. 133 Syari
Oct. 7 – 8, 1894



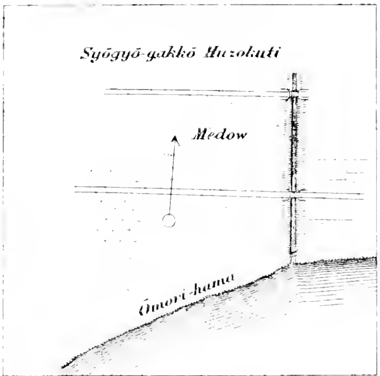
No. 134 Rausu
Oct. 11 – 12, 1894



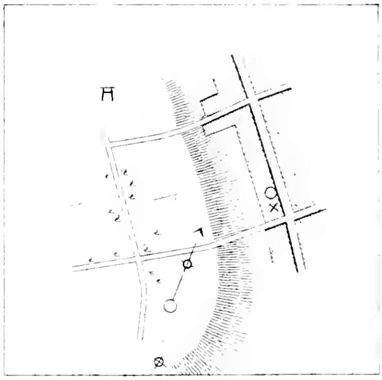
No. 135 Sibetu
Oct. 14 – 15, 1894



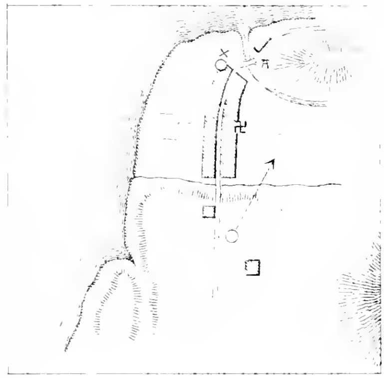
No. 136 Hakodate
July 2 - 4, 1894



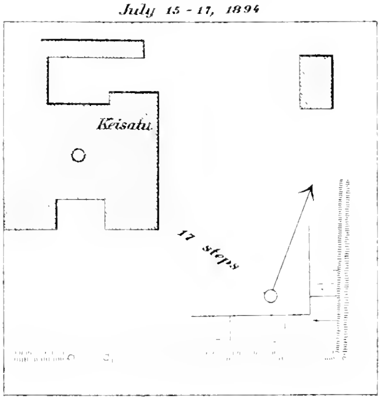
No. 137 Mori
July 6 - 7, 1894



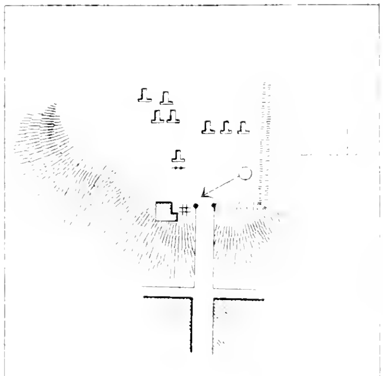
No. 138 Setana
July 12 - 13, 1894



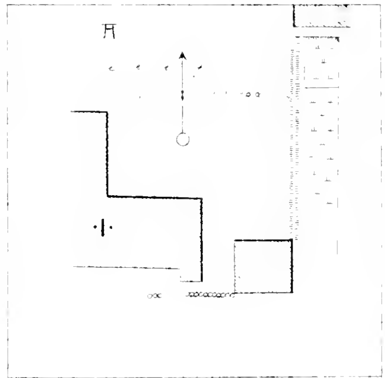
No. 139 Kutō.
July 15 - 17, 1894



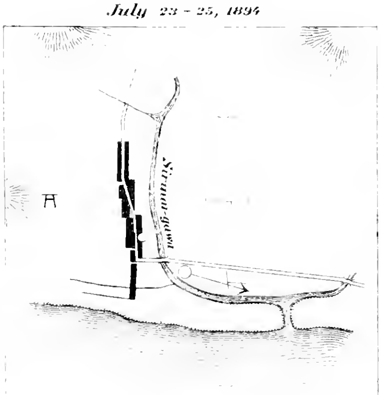
No. 140 Esasi.
July 18 - 20, 1894



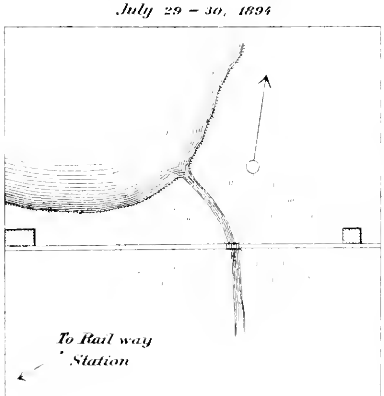
No. 141 Hukuyama.
July 21 - 22, 1894



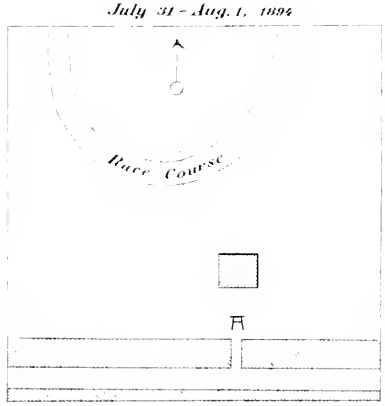
No. 142 Siriuti.
July 23 - 25, 1894



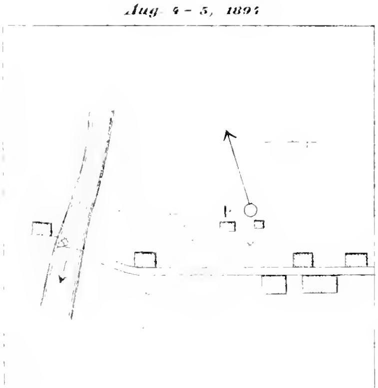
No. 143 Tiribetu.
July 29 - 30, 1894



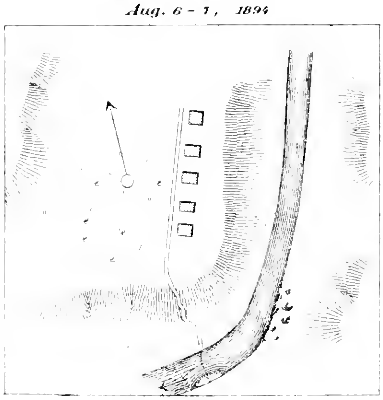
No. 144 Tomakomai.
July 31 - Aug. 1, 1894



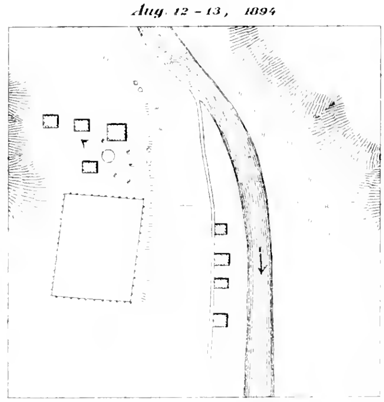
No. 145 Sarupt.
Aug. 4 - 5, 1894



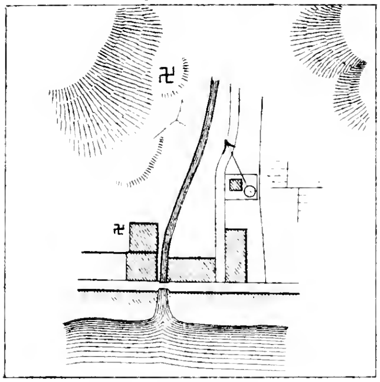
No. 146 Osyatinai.
Aug. 6 - 7, 1894



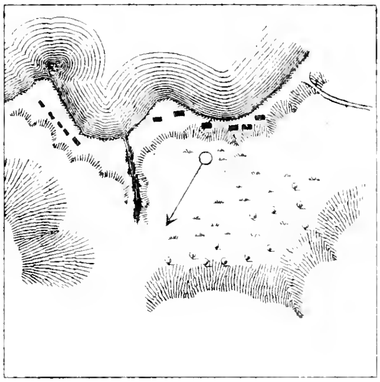
No. 147 Nohuka.
Aug. 12 - 13, 1894



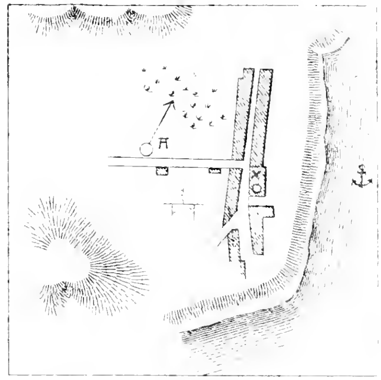
No. 148 Urakawa.
Aug. 14 - 15, 1894



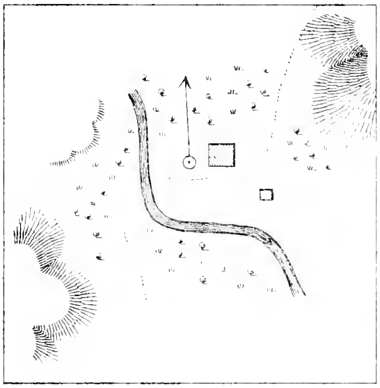
No. 149 Syoya.
Aug. 19 - 21, 1894



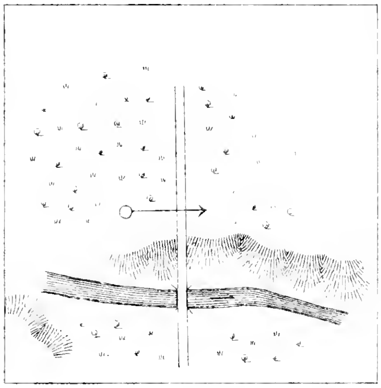
No. 150 Mogoro.
Aug. 24 - 25, 1894



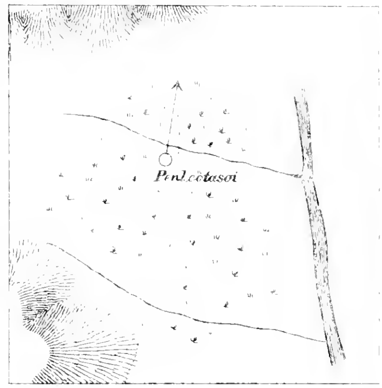
No. 151 Tyûrui.
Aug. 27 - 28, 1894



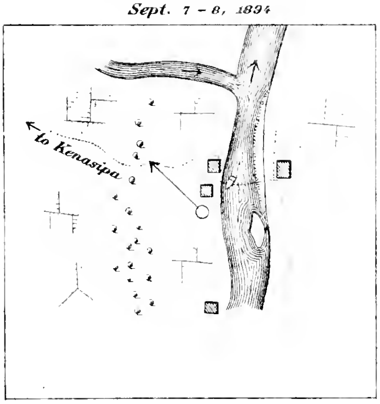
No. 152 Memuro.
Aug. 30 - 31, 1894



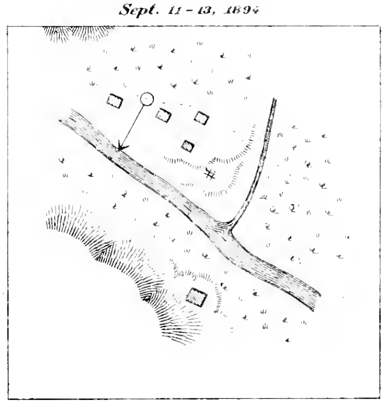
No. 153 Otasoi.
Sept. 3 - 4, 1894



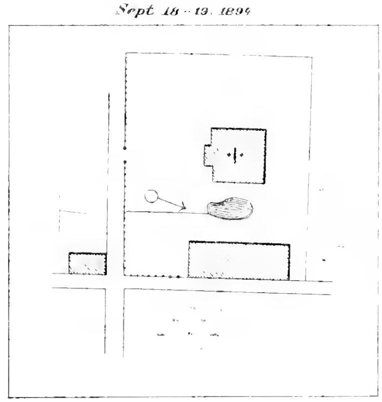
No. 154 Syorusam.
Sept. 7 - 8, 1894



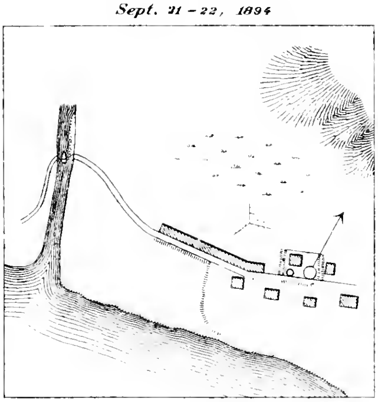
No. 155 Asyoro.
Sept. 11 - 13, 1894



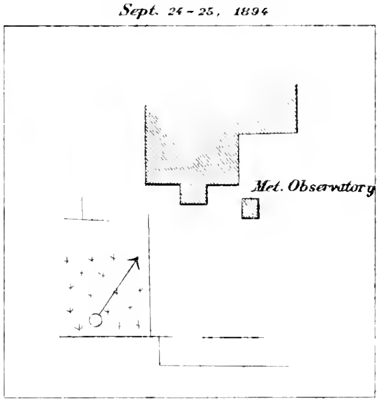
No. 156 Ōtu.
Sept. 18 - 19, 1894



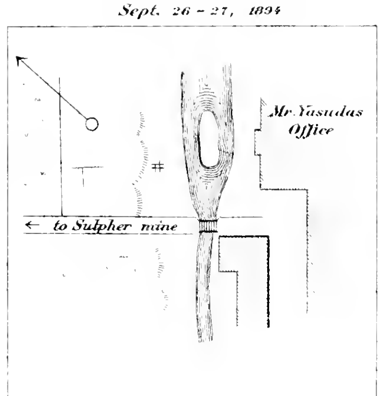
No. 157 Siranuka.
Sept. 21 - 22, 1894



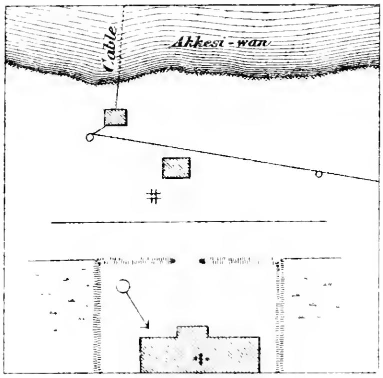
No. 158 Sibetya.
Sept. 24 - 25, 1894



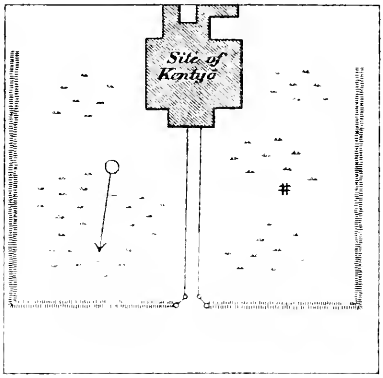
No. 159 Atusanupuri.
Sept. 26 - 27, 1894



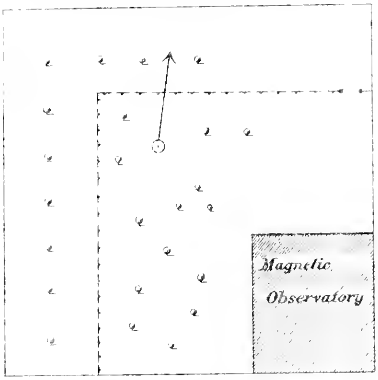
No. 160 Sinryū.
Sept. 30 - Oct. 1, 1894



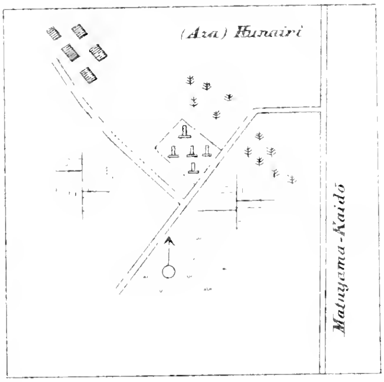
No. 161 Nemuro.
Oct. 6 - 7, 1894



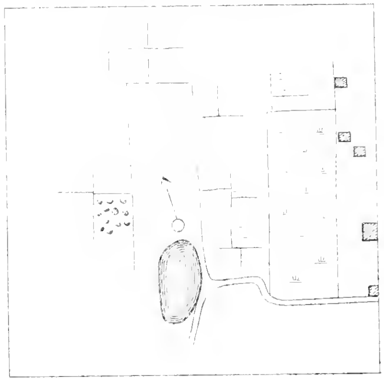
No. 162 Sendai
June 29 - 30, and Oct. 25 - 26, 1894
June 26 - 26, and Sept. 9 - 10, 1895



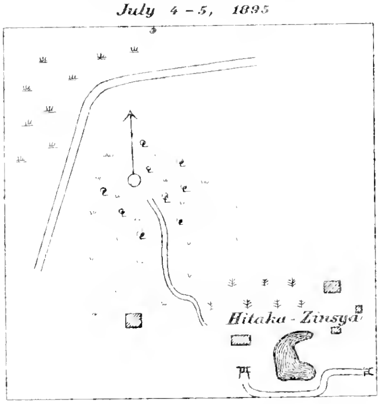
No. 163 Kogota
June 29 - 30, 1895



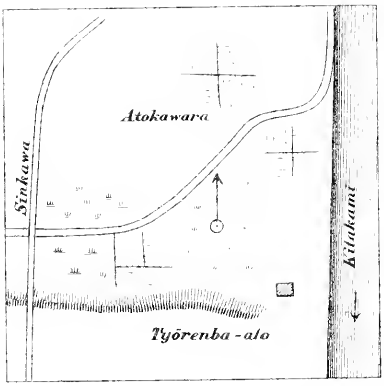
No. 164 Gamon (Wakayanagi)
July 2 - 3 and Sept. 8, 1895



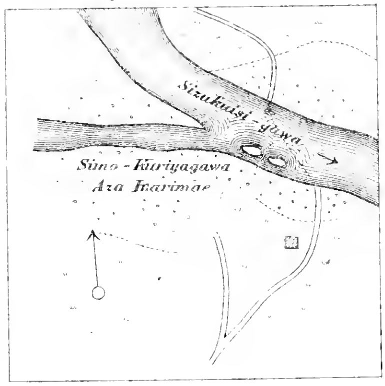
No. 165 Midzusawa
July 4 - 5, 1895



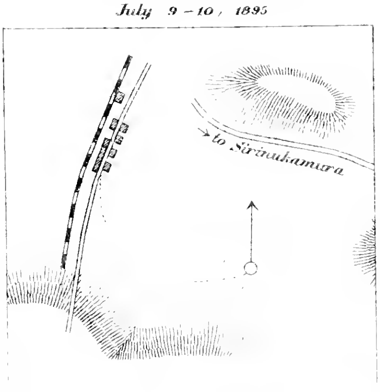
No. 166 Hanamaki
July 6 - 7, 1895



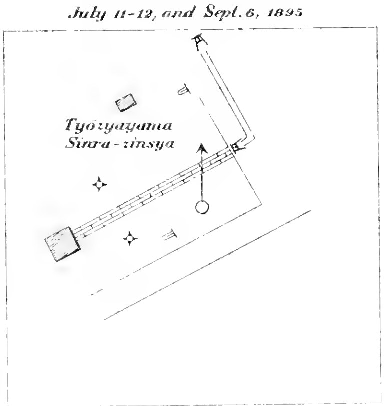
No. 167 Morioka
July 7 - 8, and Sept. 7, 1895



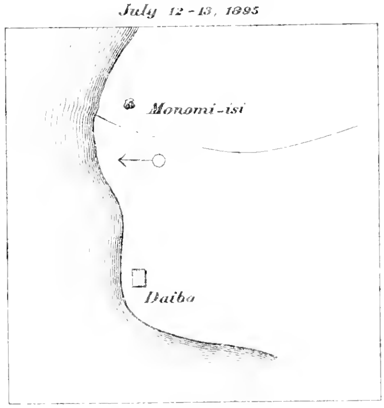
No. 168 Nakayama
July 9 - 10, 1895



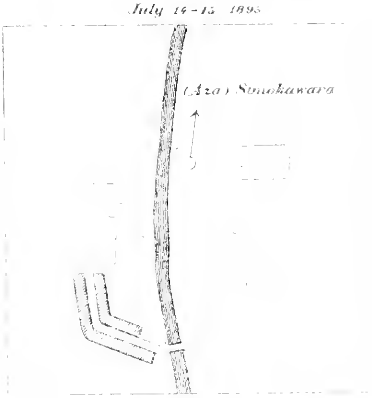
No. 169 Hatinohe
July 11 - 12, and Sept. 6, 1895



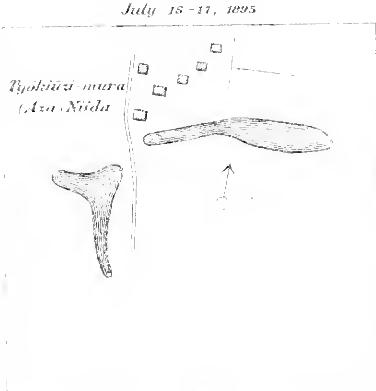
No. 170 Sameura
July 12 - 13, 1895



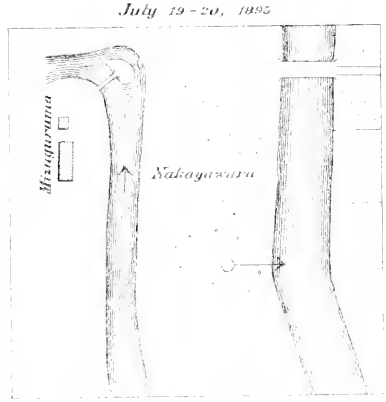
No. 171 Ōno
July 14 - 15 1895



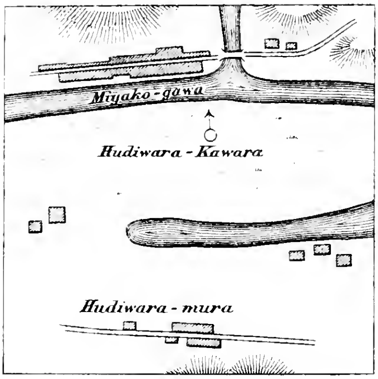
No. 172 Kuzi
July 15 - 17, 1895



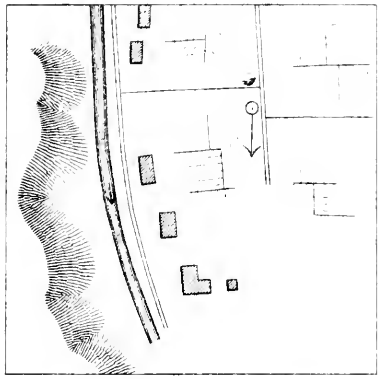
No. 174 Anazawa
July 19 - 20, 1895



No. 176 Miyako
July 22 – 23, 1895

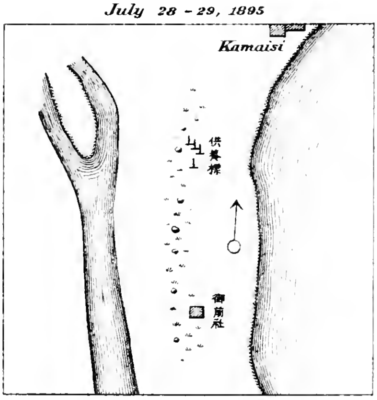


No. 177 Oguni
July 24, 1895

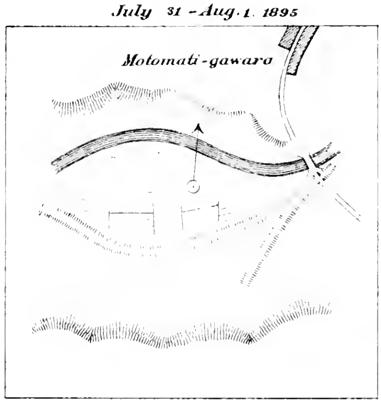


No. 178 Tōno
July 25 – 27, 1895

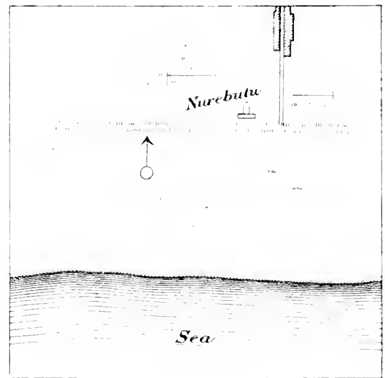
No. 179 Kamaisi
July 28 – 29, 1895



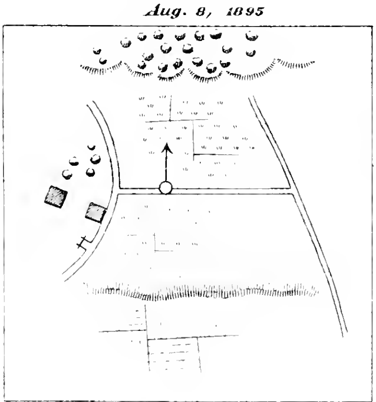
No. 180 Kesennuma
July 31 – Aug. 1, 1895



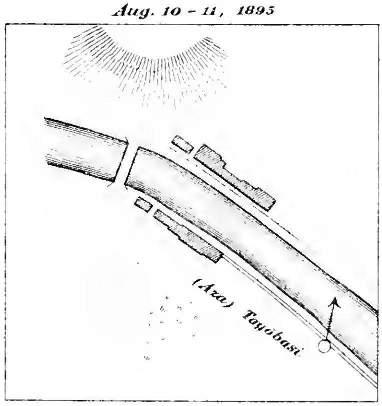
No. 181 Isinomaki
Aug. 6 – 7, 1895



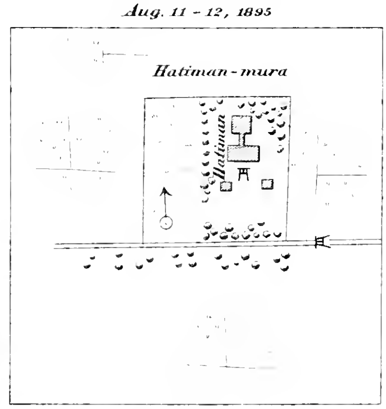
No. 182 Ikusazawa
Aug. 8, 1895



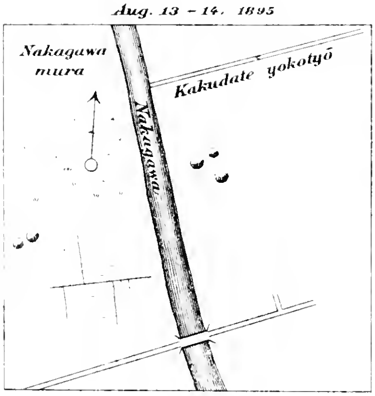
No. 183 Simoinnai
Aug. 10 – 11, 1895



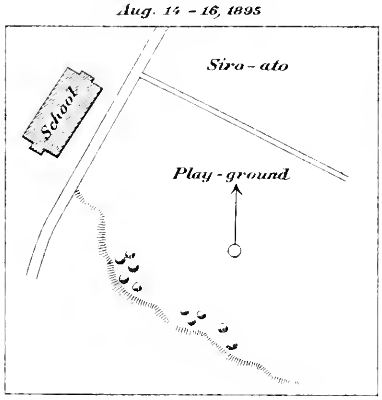
No. 184 Yokote
Aug. 11 – 12, 1895



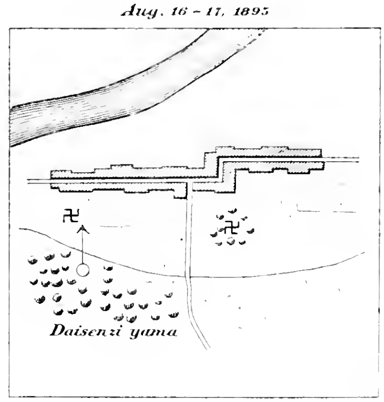
No. 185 Kakudate
Aug. 13 – 14, 1895



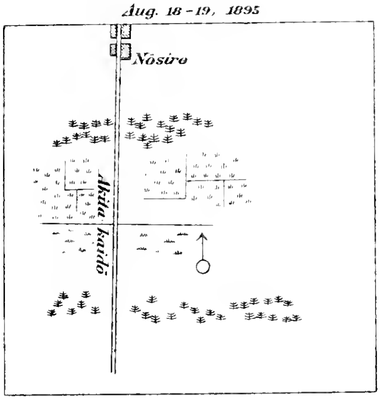
No. 187 Akita
Aug. 14 – 16, 1895



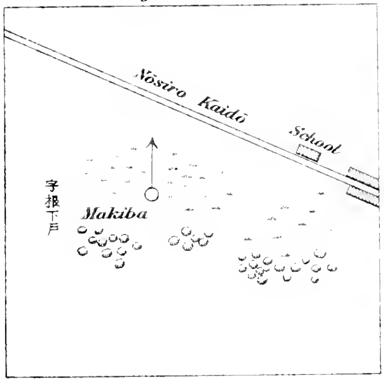
No. 188 Honzyō
Aug. 16 – 17, 1895



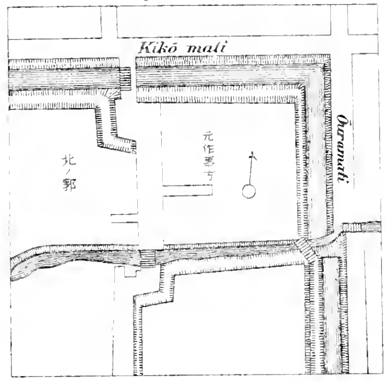
No. 189 Nōsiro.
Aug. 18–19, 1895



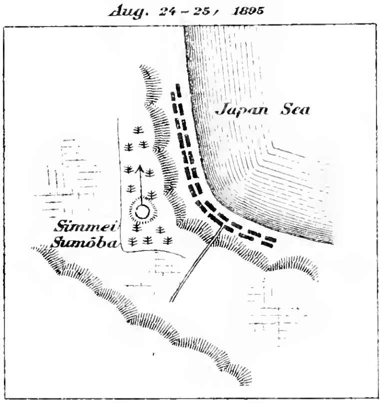
No 190 Ōdate.
Aug. 20–21, 1895



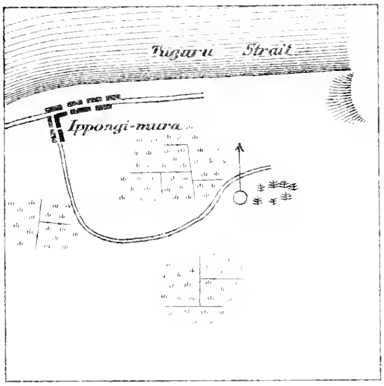
No. 191 Hirosaki.
Aug. 22–23, 1895



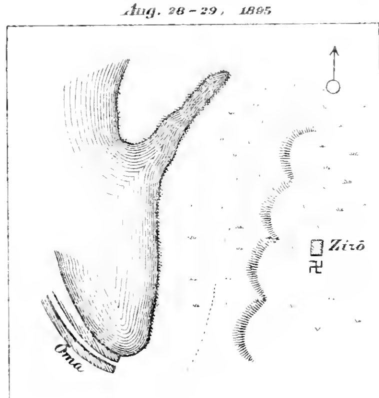
No. 192 Adigasawa.
Aug. 24–25, 1895



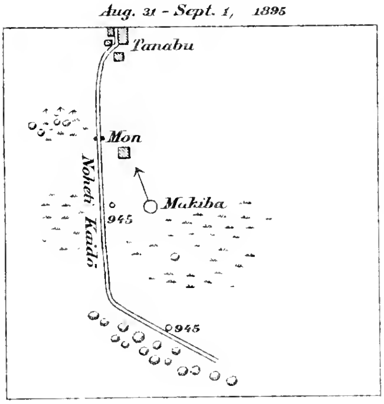
No. 193 Ippongi.
Aug. 26–27, 1895



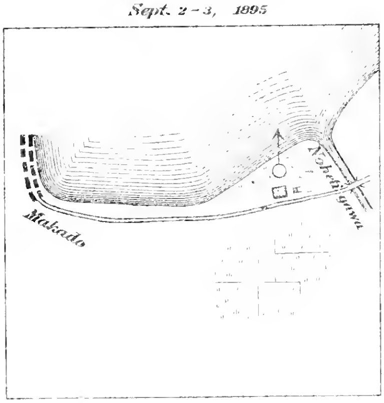
No. 194 Ōma.
Aug. 28–29, 1895



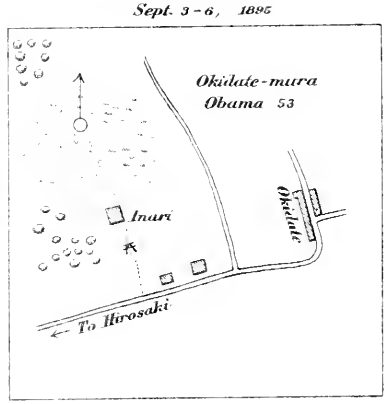
No. 195 Tanabu.
Aug. 31 – Sept. 1, 1895



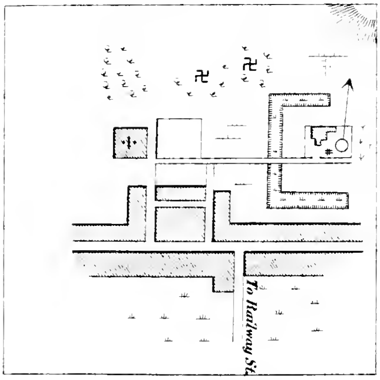
No. 196 Makado.
Sept. 2–3, 1895



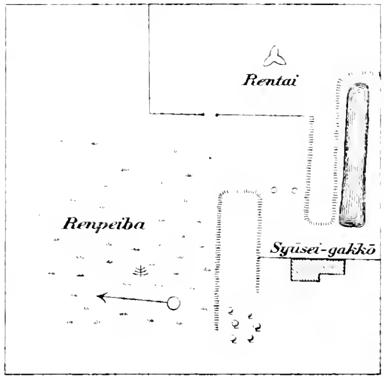
No. 197 Aomori.
Sept. 3–6, 1895



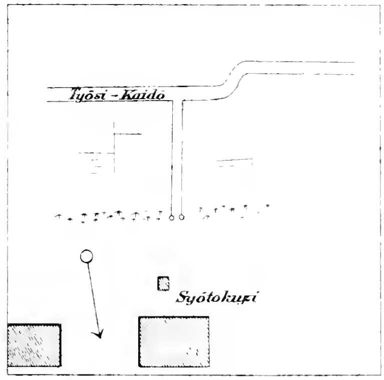
No. 198 Hukaya.
June 28 - 29, 1895



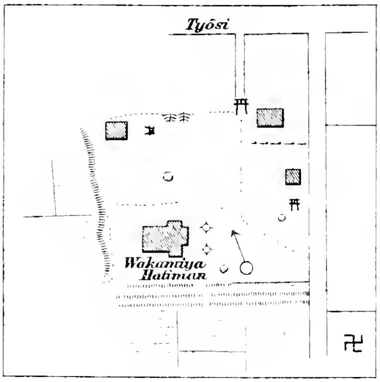
No. 199 Sakura.
July 2 - 3, 1895



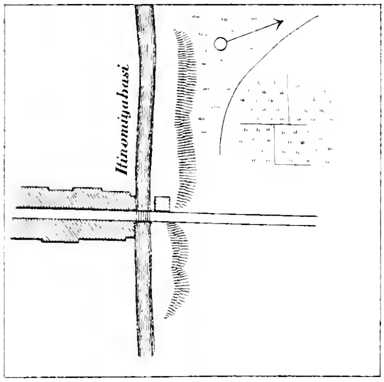
No. 200 Sawara.
July 4 - 6, 1895



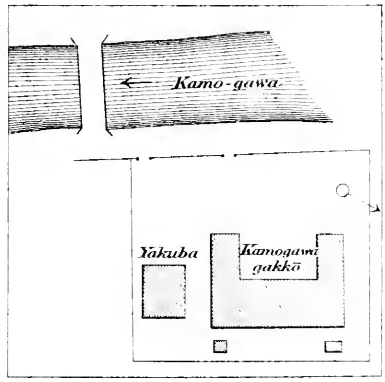
No. 201 Tyôsi.
July 7, 1895



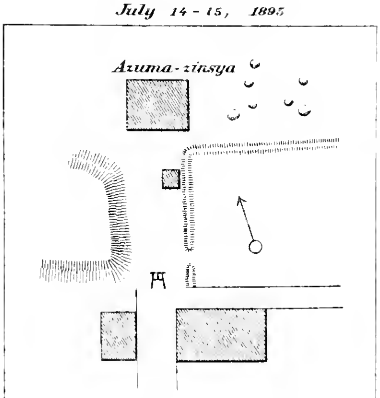
No. 202 Itinomiya.
July 9 - 10, 1895



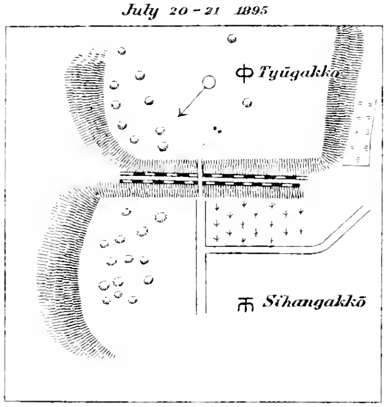
No. 203 Maebara.
July 11 - 13, 1895



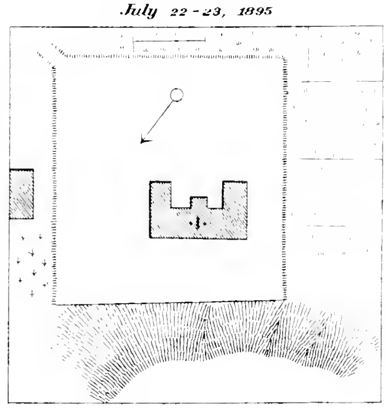
No. 204 Kisaratu.
July 14 - 15, 1895



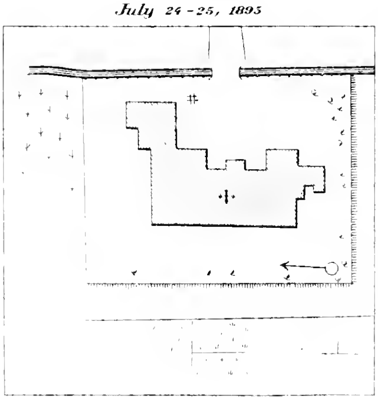
No. 205 Mito.
July 20 - 21 1895



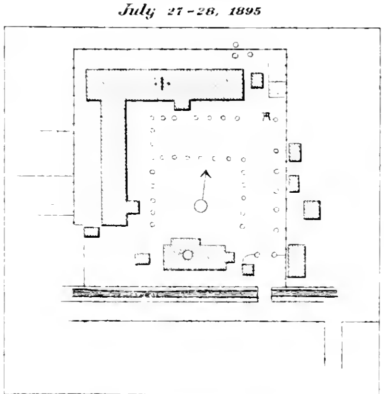
No. 206 Ueda.
July 22 - 23, 1895



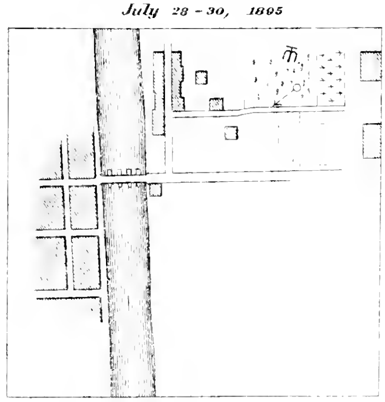
No. 207 Namie.
July 24 - 25, 1895



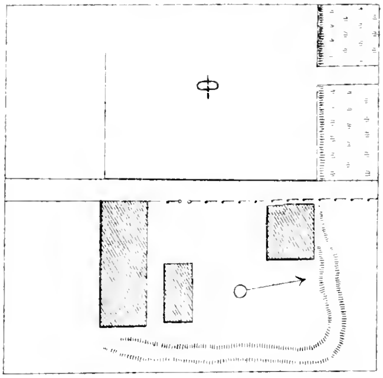
No. 208 Watari.
July 27 - 28, 1895



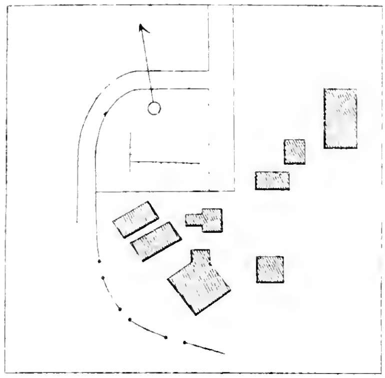
No. 209 Hukusima.
July 28 - 30, 1895



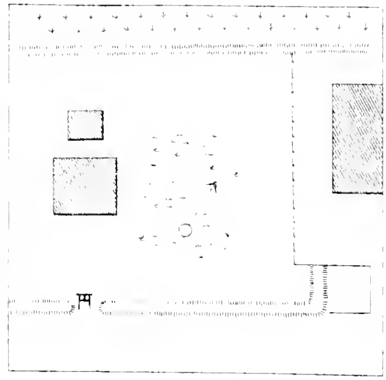
No. 210 Yonezawa.
Aug. 2-3, 1895



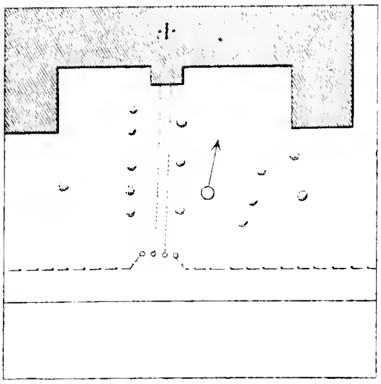
No. 211 Yamagata.
Aug. 4-6, 1895



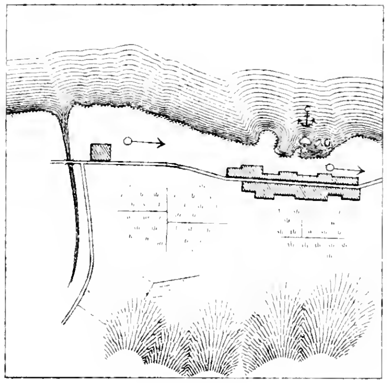
No. 212 Sinzyō.
Aug. 7-9, 1895



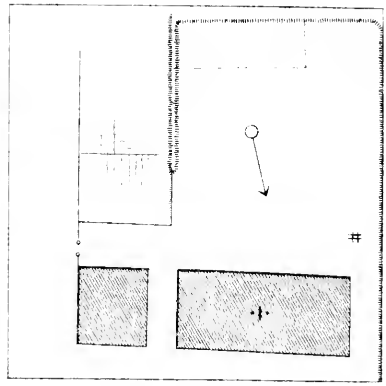
No. 213 Sakata.
Aug. 10-11, 1895



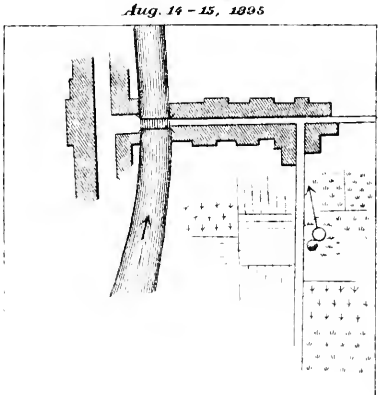
No. 214 Atumi.
Aug. 11-12, 1895



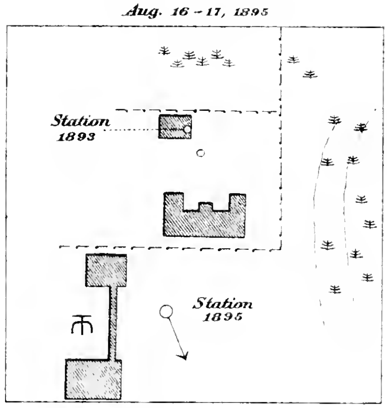
No. 215 Murakami.
Aug 12-13, 1895



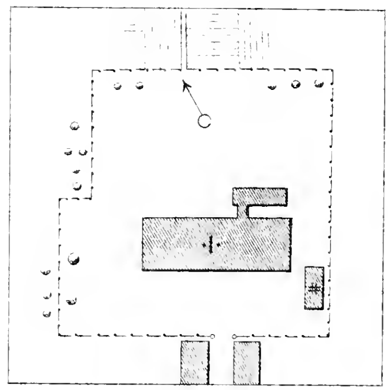
No. 216 Oguni.
Aug. 14-15, 1895



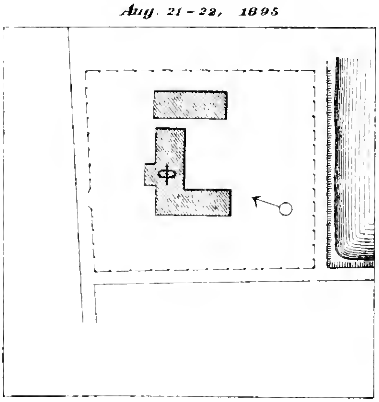
No. 25 Niigata.
Aug. 16-17, 1895



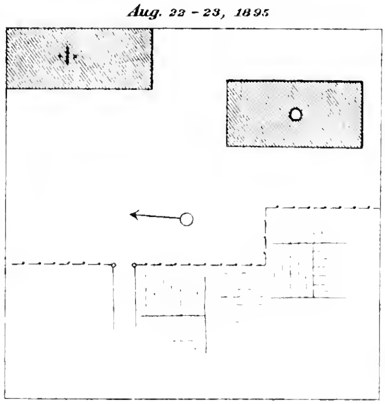
No. 217 Tugawa.
Aug. 19, 1895



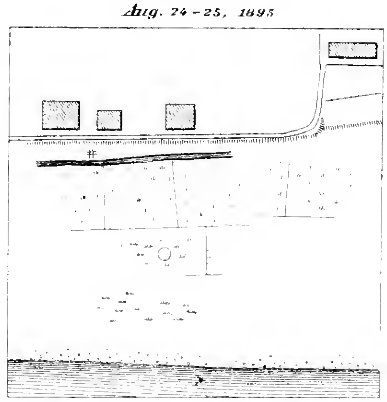
No. 218 Wakamatu.
Aug. 21-22, 1895



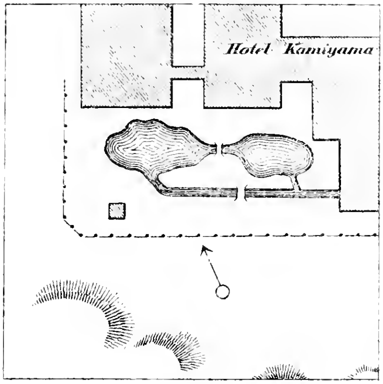
No. 219 Tazima.
Aug. 22-23, 1895



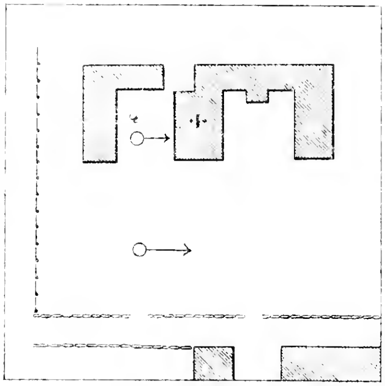
No. 220 Tadami.
Aug. 24-25, 1895



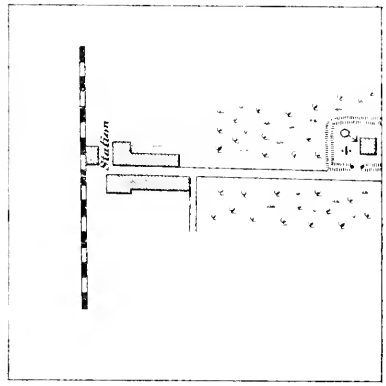
No. 221 Nikkō.
Aug. 28 – 29, 1895



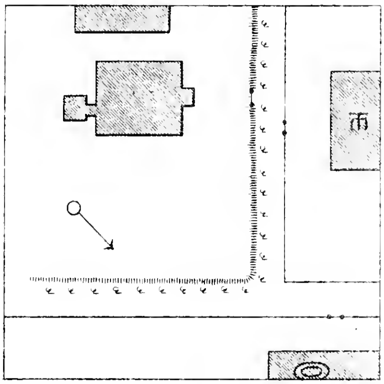
No. 222 Sukagawa.
Aug. 30, 1895



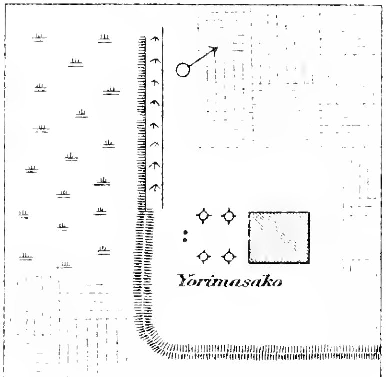
No. 223 Nisinasuno.
Aug. 31 – Sept. 1, 1895



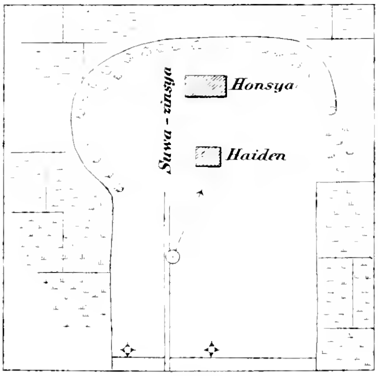
No. 224 Utunomiya.
Sept. 1 – 2, 1895



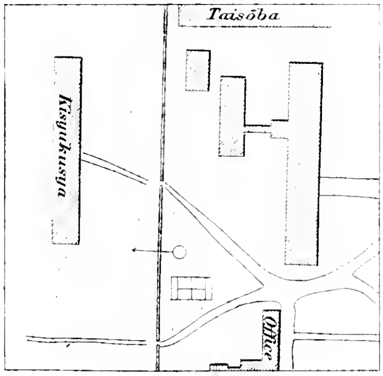
No. 225 Koga.
Sept. 3 – 4, 1895



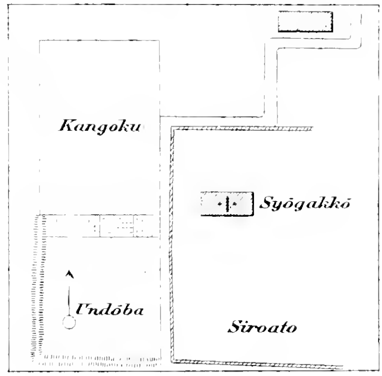
No. 226 Hatiman
June 30 – July 2, 1896



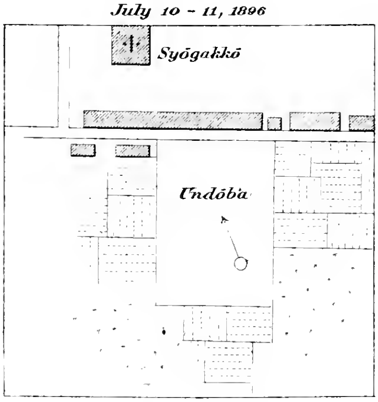
No. 227 Kyōto
July 3 – 4, 1896



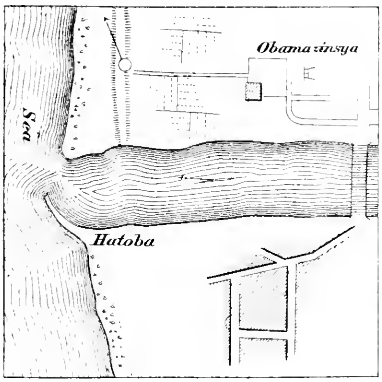
No. 228 Sasayama
July 7 – 8, 1896



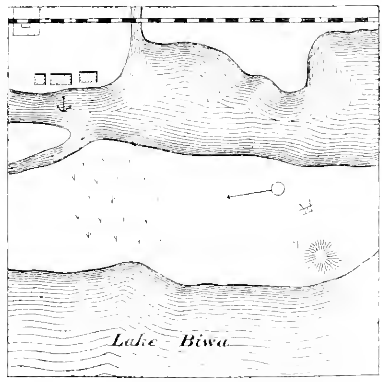
No. 229 Miyatu
July 10 – 11, 1896



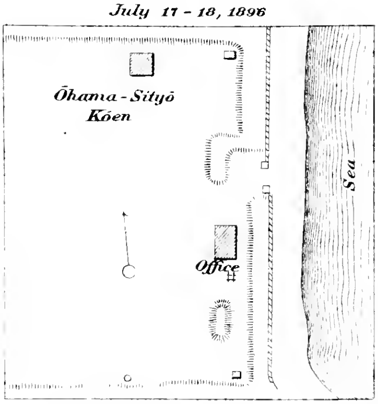
No. 230 Obama
July 12 – 13, 1896



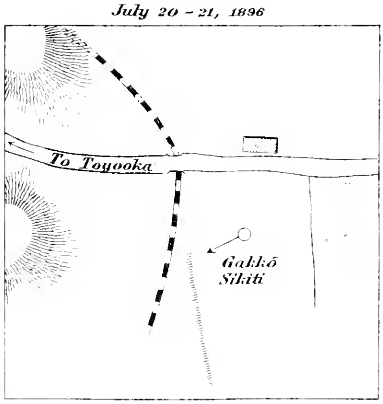
No 88 Nagahama
July 15 – 16, 1896



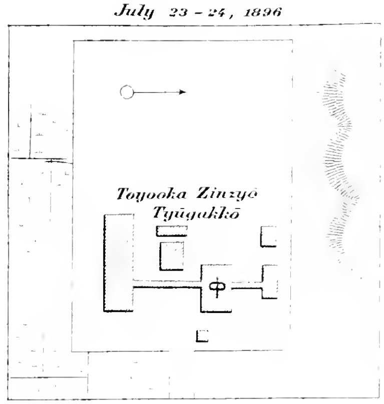
No. 231 Sakai
July 17 – 18, 1896



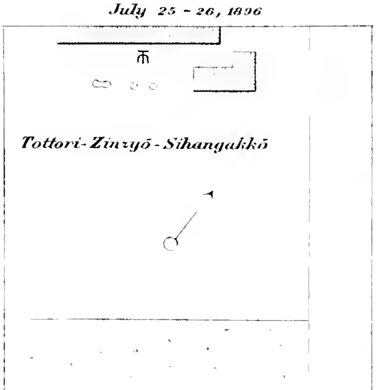
No. 232 Ikuno
July 20 – 21, 1896



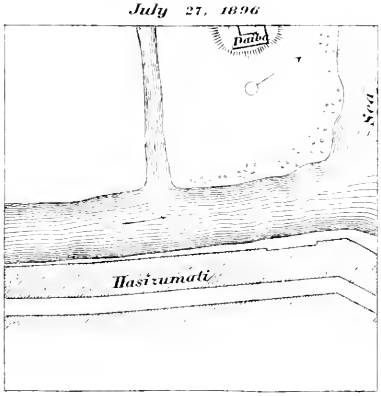
No. 233 Toyooka
July 23 – 24, 1896



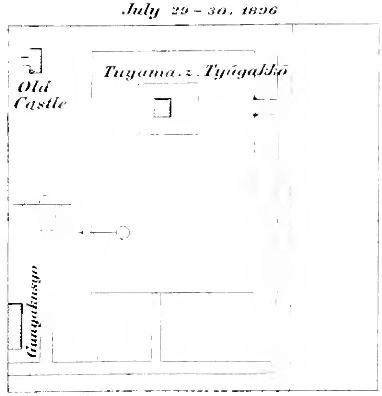
No 234 Tottori
July 25 – 26, 1896



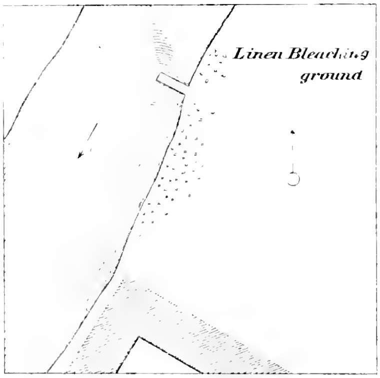
No. 235 Hasizu
July 27, 1896



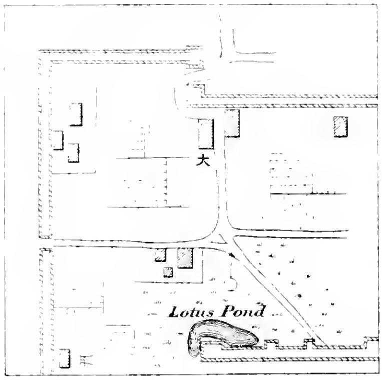
No. 236 Tuyama
July 29 – 30, 1896



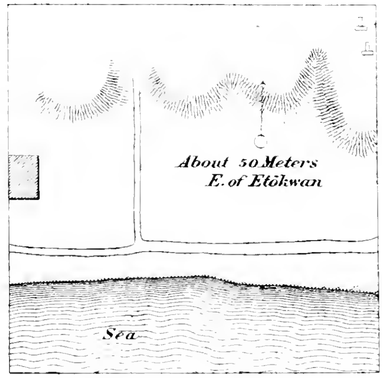
No. 237 Okayama
Aug. 1 – 2, 1896



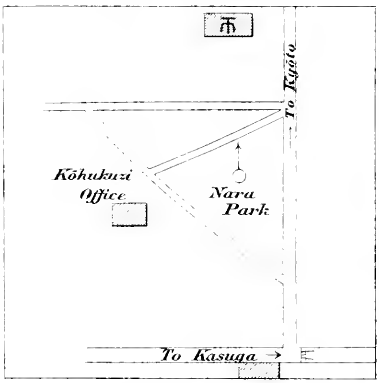
No. 238 Akō
Aug. 3 – 4, 1896



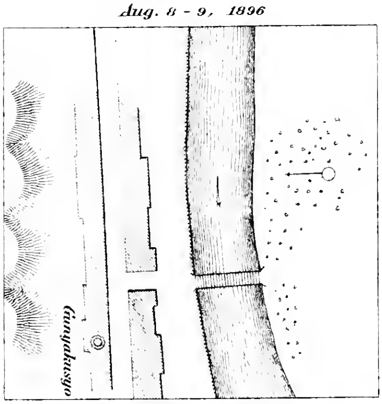
No. 239 Akasi
Aug. 4 – 5, 1896



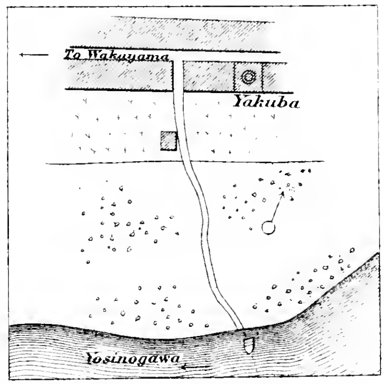
No. 240 Nara
Aug. 6 – 7, 1896



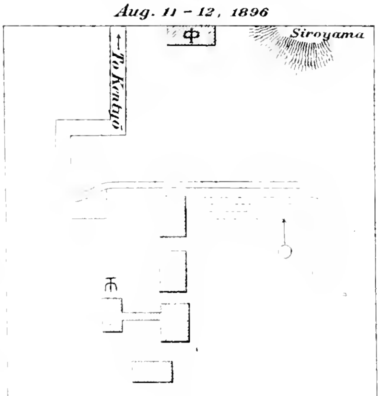
No. 241 Kamiiti
Aug. 8 – 9, 1896



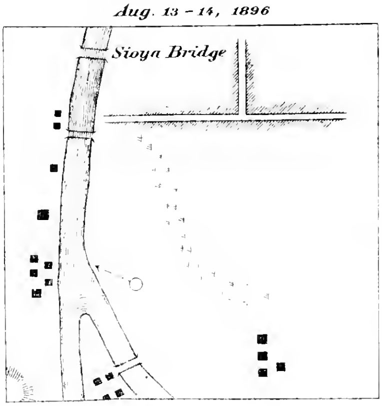
No. 242 Myōzi
Aug. 10 – 11, 1896



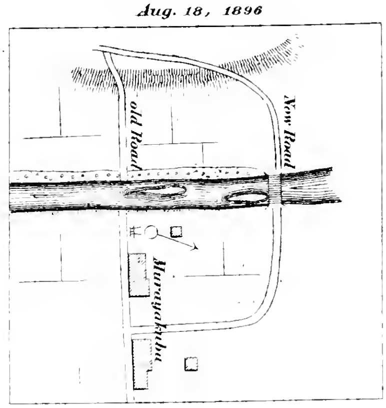
No. 243 Wakayama
Aug. 11 – 12, 1896



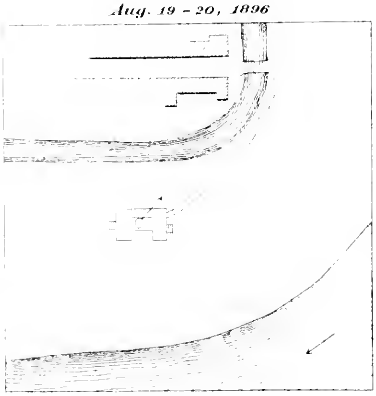
No. 244 Sumoto
Aug. 13 – 14, 1896



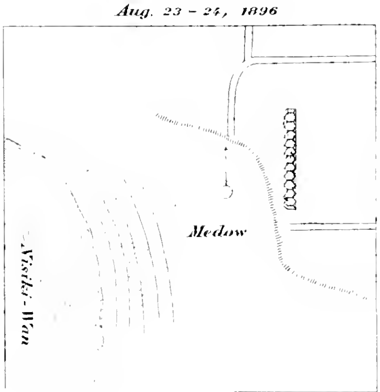
No. 246 Tikatuyu
Aug. 18, 1896



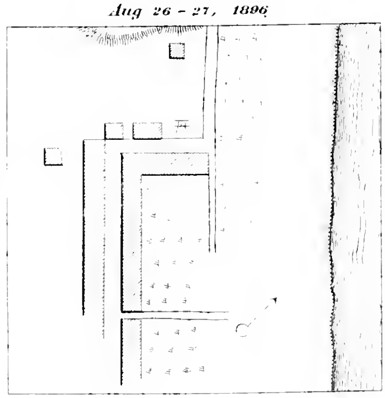
No. 247 Hongū
Aug. 19 – 20, 1896



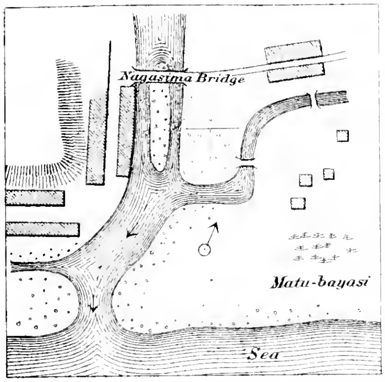
No. 248 Kusimoto
Aug. 23 – 24, 1896



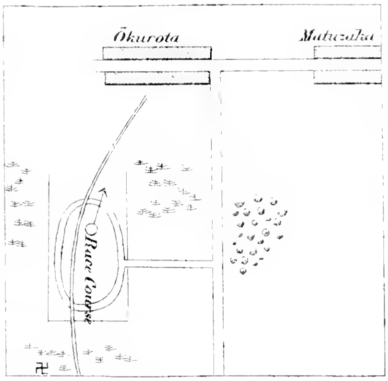
No. 249 Arima
Aug 26 – 27, 1896



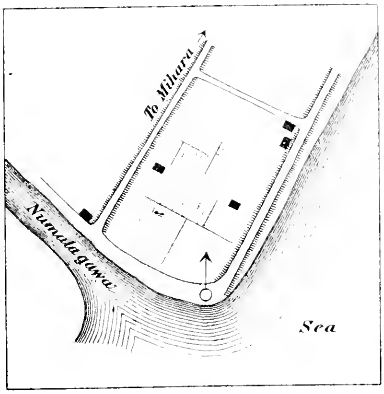
No. 250 Nagasima
Aug. 29 – 31, 1896



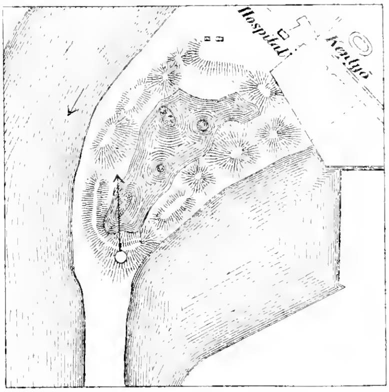
No. 251 Matusaka
Sept. 2 – 3, 1896



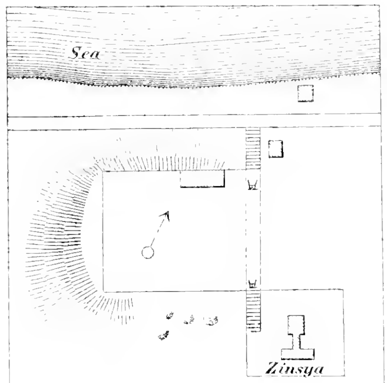
No. 252 Mihara
July 1 – 2, 1896



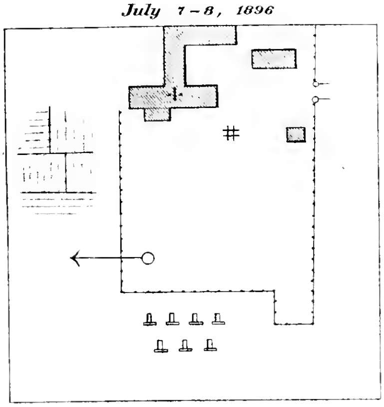
No. 253 Hirosima
July 2 – 4, 1896



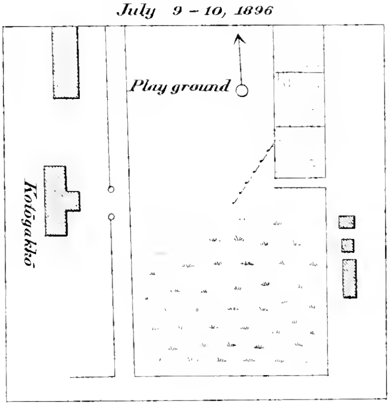
No. 254 Sitata
July 5 – 6, 1896



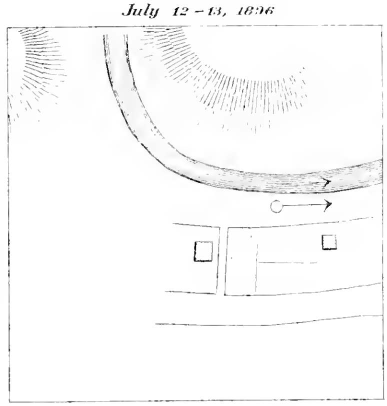
No. 255 Murodumi
July 7 – 8, 1896



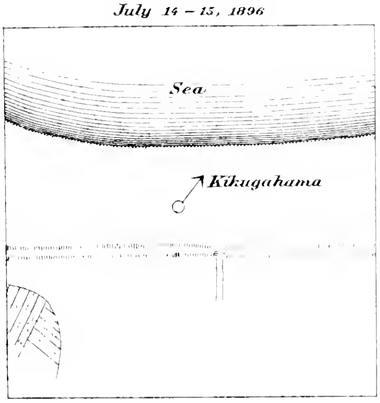
No. 256 Yamaguti
July 9 – 10, 1896



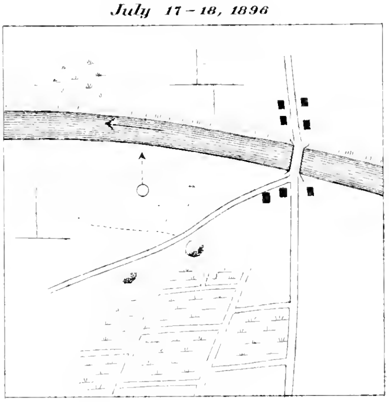
No. 257 Tuwano
July 12 – 13, 1896



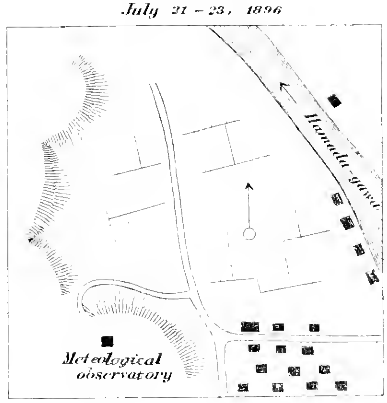
No. 258 Hagi
July 14 – 15, 1896



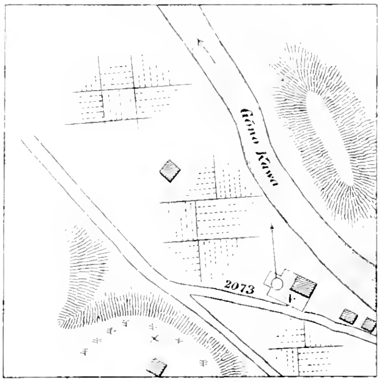
No. 259 Awano
July 17 – 18, 1896



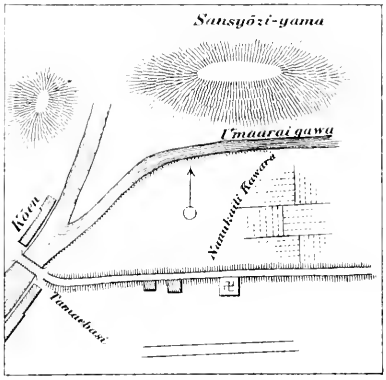
No. 260 Hamada
July 21 – 23, 1896



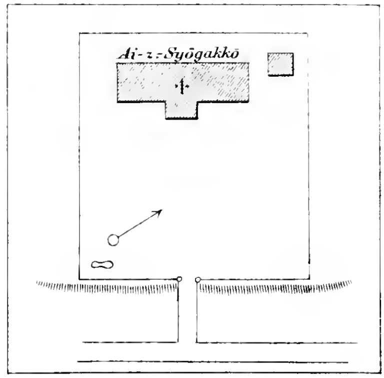
No. 261 Itiki
July 24 – 25, 1896



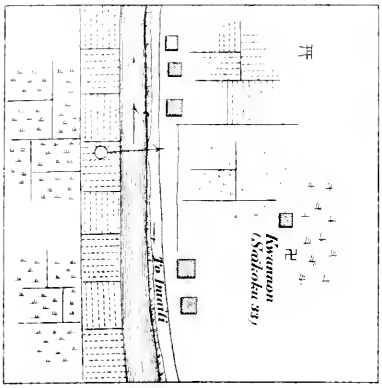
No. 262 Miyosi
July 26 – 27, 1896



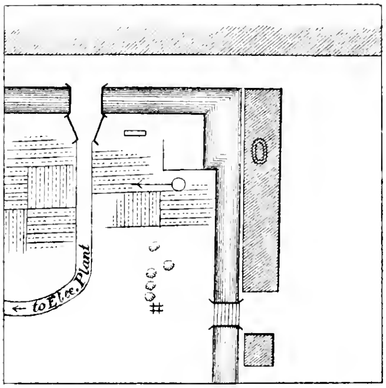
No. 263 Ai
July 28 – 29, 1896



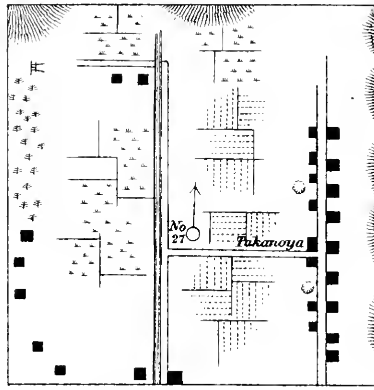
No. 264 Imaiti
July 31–Aug. 1, 1896



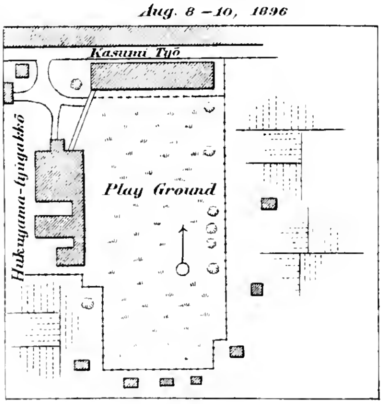
No. 265 Matuye
Aug. 1 – 3. 1896



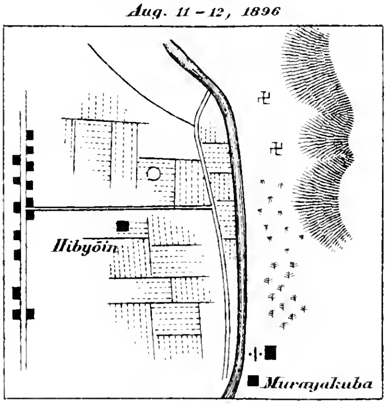
No. 266 Kurosaka
Aug. 4 – 5, 1896



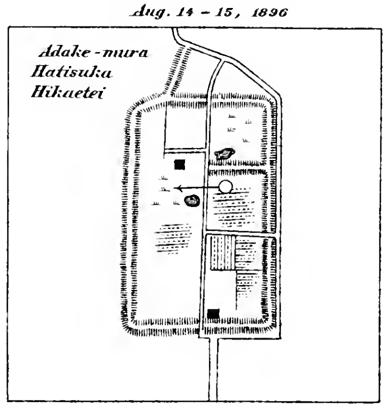
No. 268 Hukuyama
Aug. 8 – 10, 1896



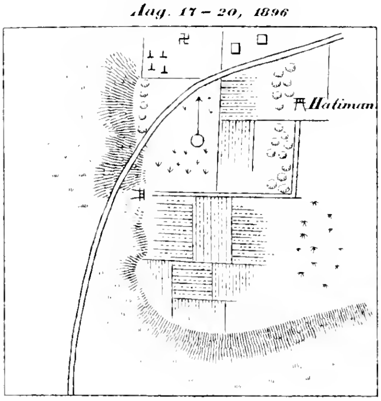
No. 270 Takahasi
Aug. 11 – 12, 1896



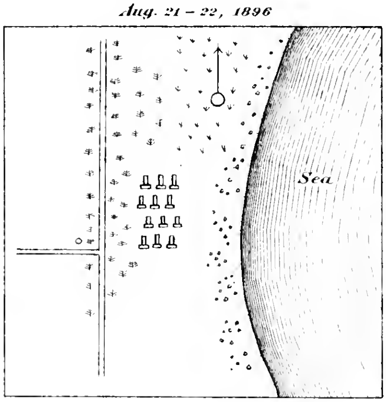
No. 271 Tokusima
Aug. 14 – 15, 1896



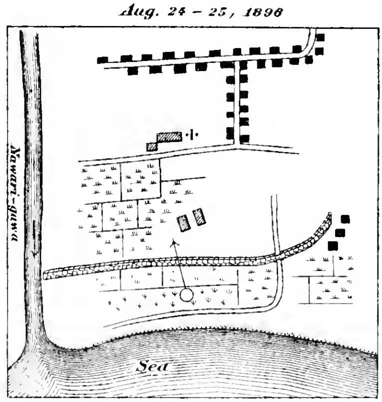
No. 272 Wakimati
Aug. 17 – 20, 1896



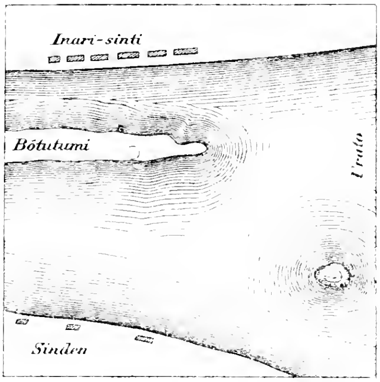
No. 273 Ōsato
Aug. 21 – 22, 1896



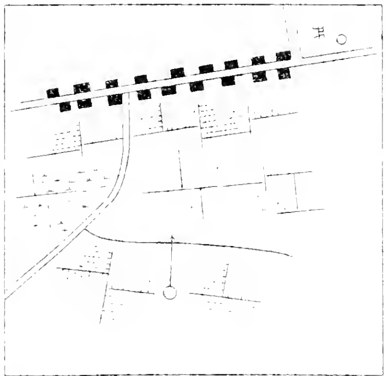
No. 274 Nawari
Aug. 24 – 25, 1896



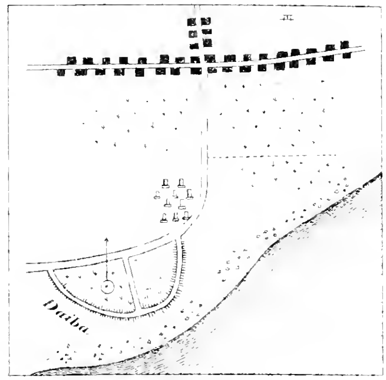
No. 275 Kôti
Aug. 26 – 27, 1896



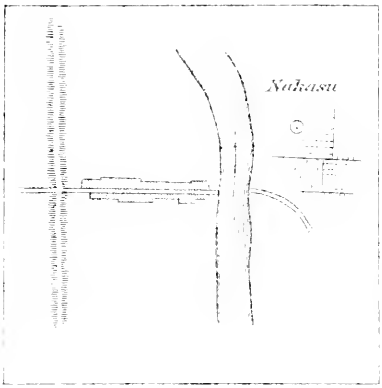
No. 276 Ôtotu
Aug. 28 – 29, 1896



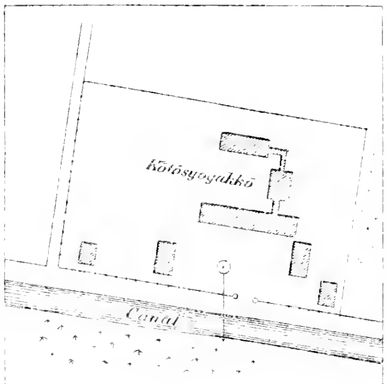
No. 277 Susaki
Aug. 31 – Sept. 1, 1896



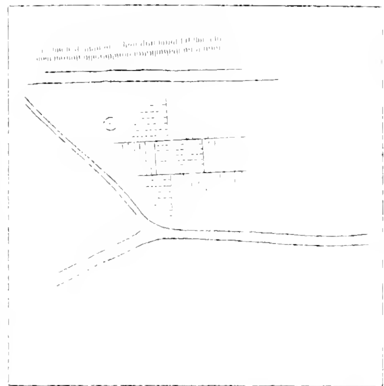
No. 278 Nakamura
Sept. 3 – 4, 1896



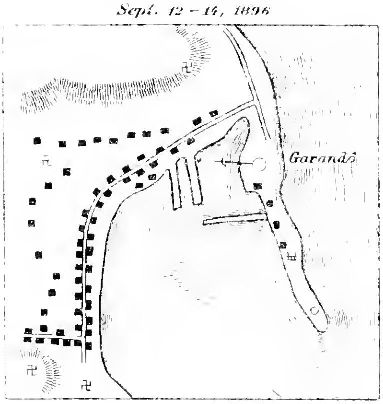
No. 279 Uwazima
Sept. 6 – 8, 1896



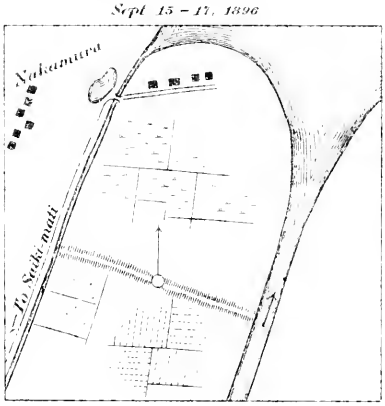
No. 280 Wakamiya
Sept. 9 – 10, 1896



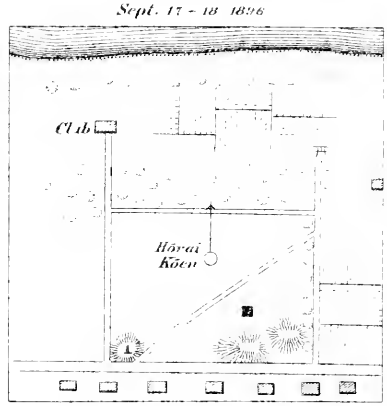
No. 282 Saganoseki
Sept. 12 – 14, 1896



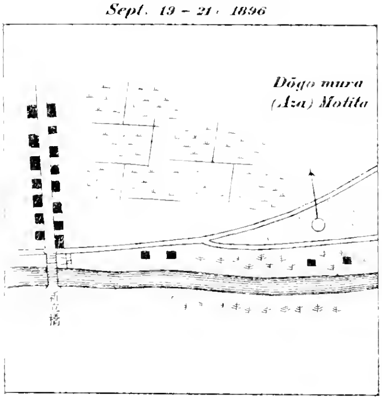
No. 283 Saiki
Sept. 15 – 17, 1896



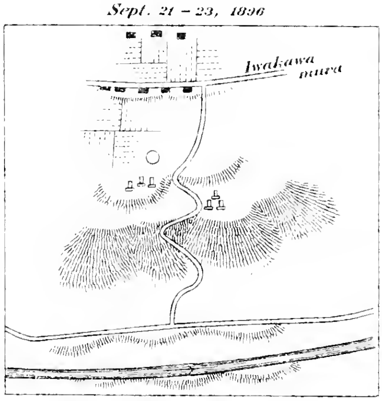
No. 284 Oita
Sept. 17 – 18, 1896



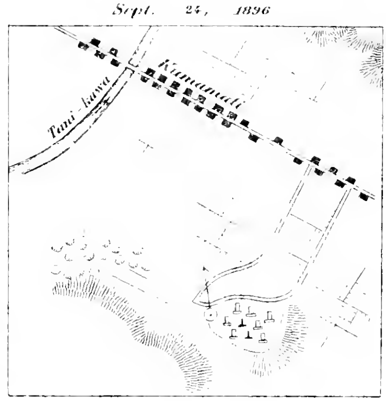
No. 285 Matuyama
Sept. 19 – 21, 1896



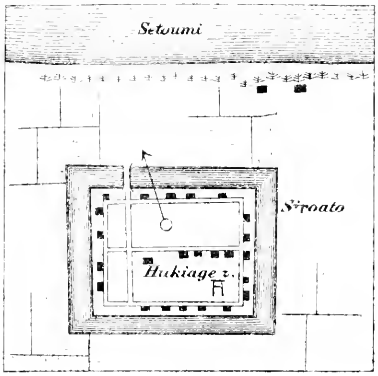
No. 286 Kuzu
Sept. 21 – 23, 1896



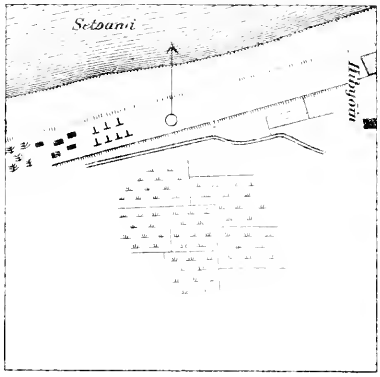
No. 287 Kuma
Sept. 24, 1896



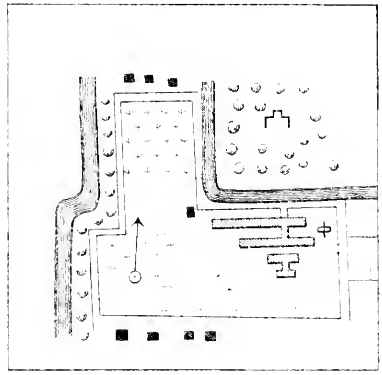
No. 288 Imabaru
Sept 25 – 27 1896



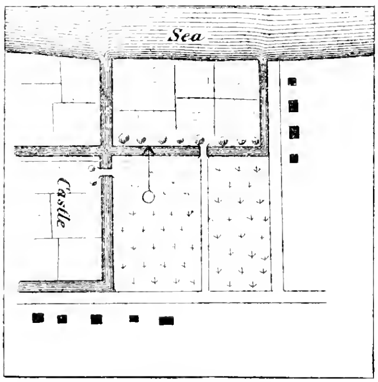
No. 289 Kawanoe
Sept. 28 – 29, 1896



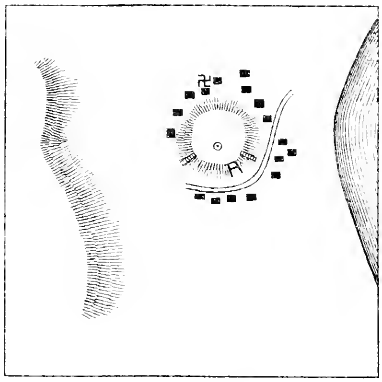
No. 290 Marugame
Sept. 29 – 30, 1896



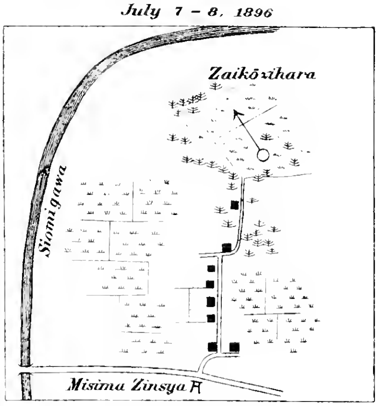
No. 291 Takamatu
Oct. 1 – 2, 1896



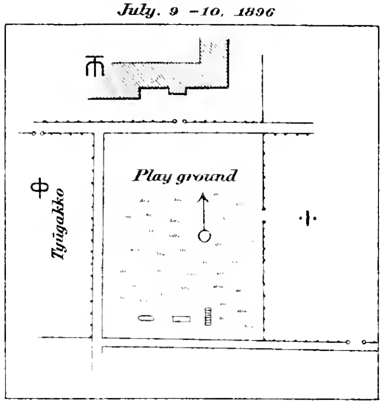
No. 292 Tonosyō
Oct. 3 – 4, 1896



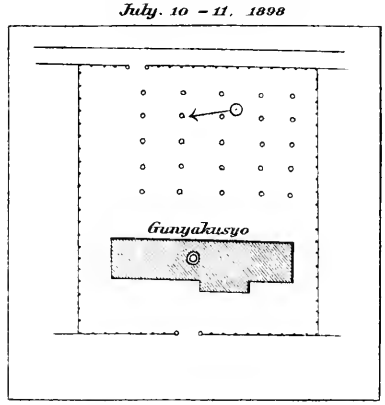
No. 293 Zaikōzi
July 7 – 8, 1896



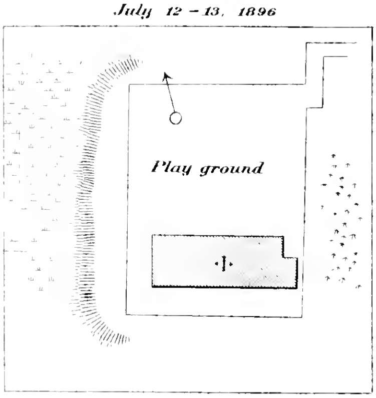
No. 294 Miyazaki
July. 9 – 10, 1896



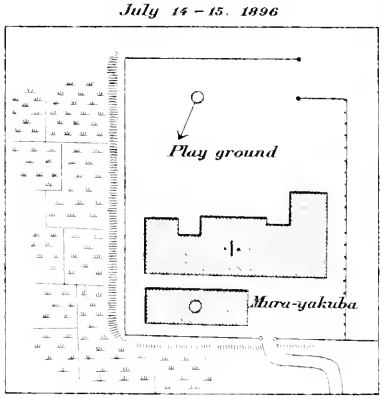
No. 295 Miyakonozyō
July. 10 – 11, 1898



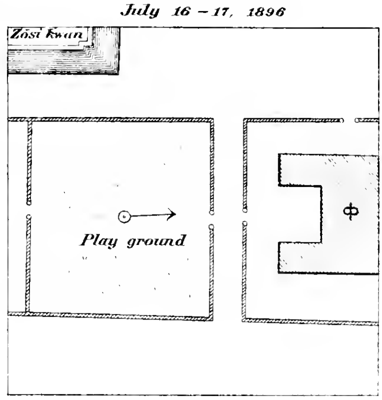
No. 296 Nakamati
July 12 – 13, 1896



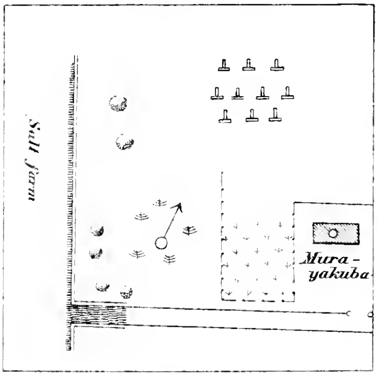
No. 297 Kōyama
July 14 – 15, 1896



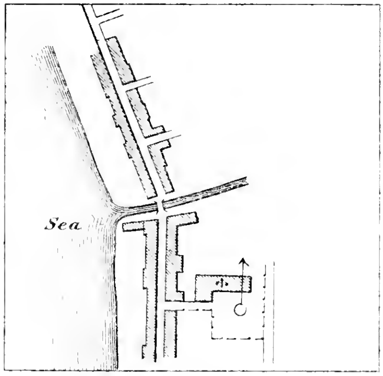
No. 298 Kagosima
July 16 – 17, 1896



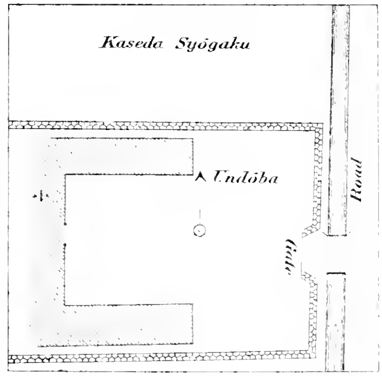
No. 299 Itiki
July 18 – 19, 1896



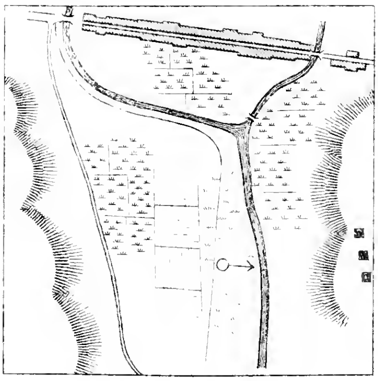
No. 300 Makurazaki
July 20 – 21, 1896



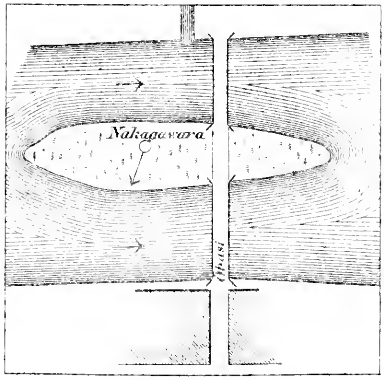
No. 301 Kaseda
July 22, 1896



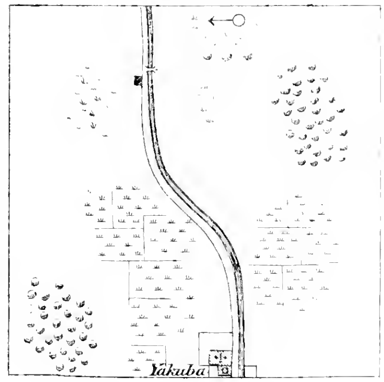
No. 302 Yokogawa
July 24 – 25, 1896



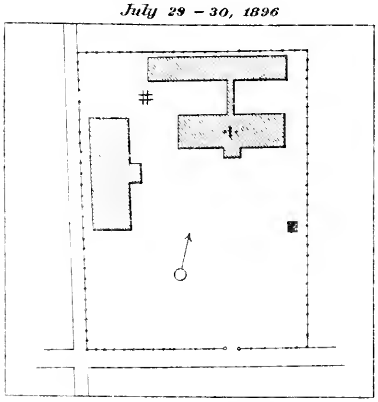
No. 303 Hitoyosi
July 26 – 27, 1896



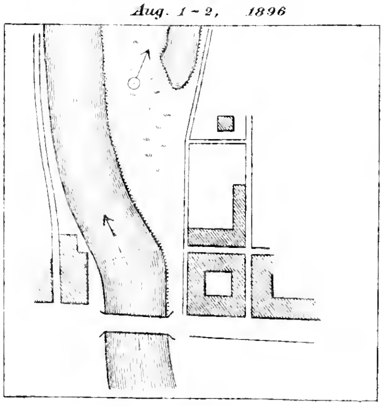
No. 304 Yunomae
July 27 – 28, 1896



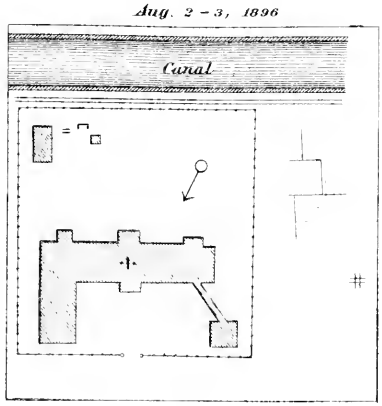
No. 305 Yatusiro
July 29 – 30, 1896



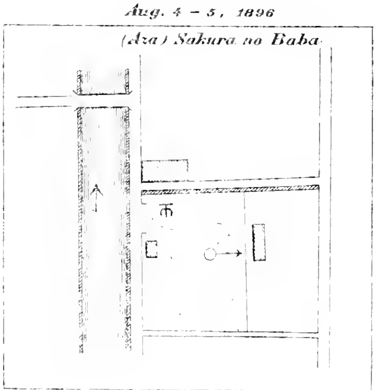
No. 306 Minamata
Aug. 1 – 2, 1896



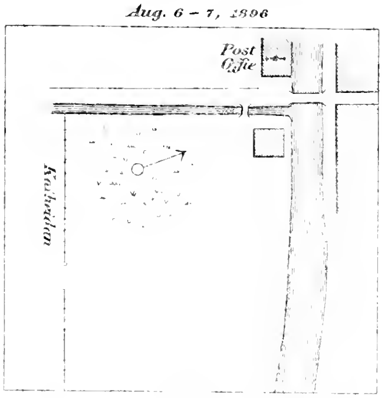
No. 307 Simabara
Aug. 2 – 3, 1896



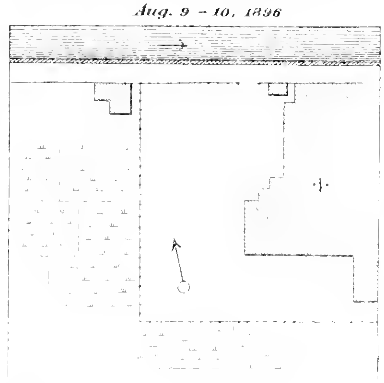
No. 308 Nagasaki
Aug. 4 – 5, 1896



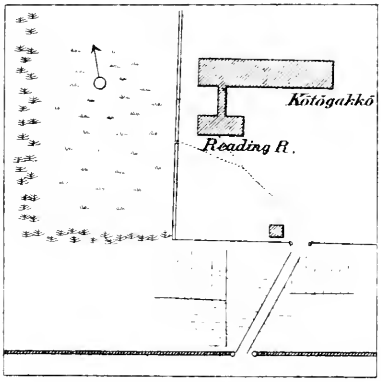
No. 309 Sasebo
Aug. 6 – 7, 1896



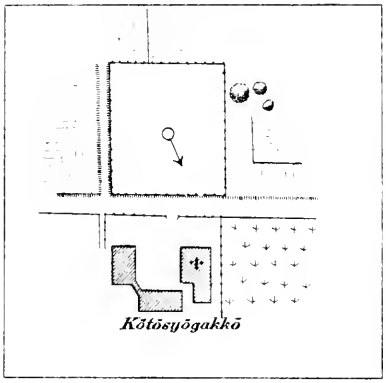
No. 310 Matiyamaguti
Aug. 9 – 10, 1896



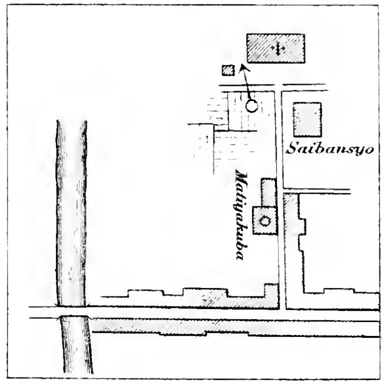
No. 311 Kumamoto
Aug. 10 – 11, 1896



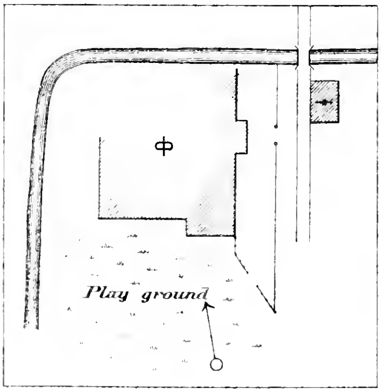
No. 312 Miyadi
Aug. 13 – 14, 1896



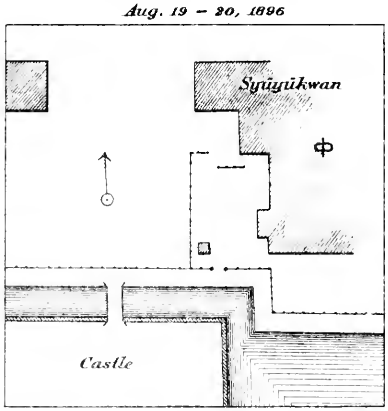
No. 313 Mamibara
Aug. 15 – 16, 1896



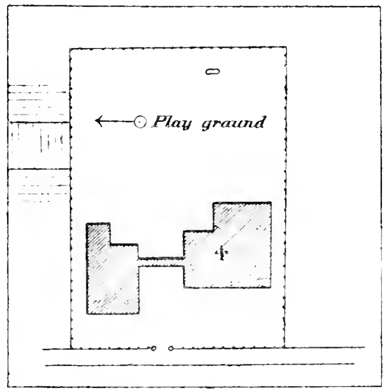
No. 314 Yanagawa
Aug. 17 – 18, 1896



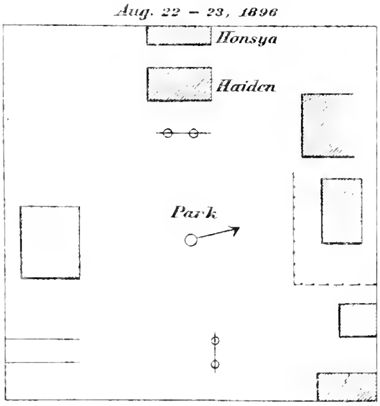
No. 315 Hukuoka
Aug. 19 – 20, 1896



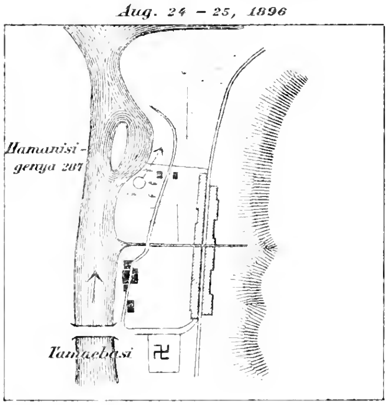
No. 316 Kokura
Aug. 20 – 21, 1896



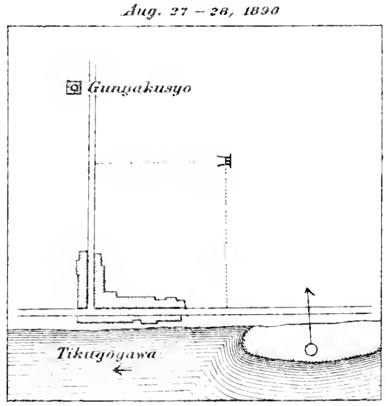
No. 317 Nakatu
Aug. 22 – 23, 1896



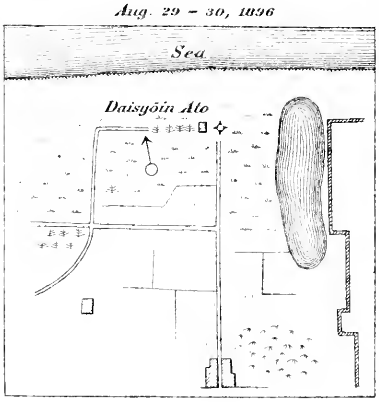
No. 318 Nakamatama
Aug. 24 – 25, 1896



No. 319 Kuma
Aug. 27 – 28, 1896



No. 320 Karatu
Aug. 29 – 30, 1896



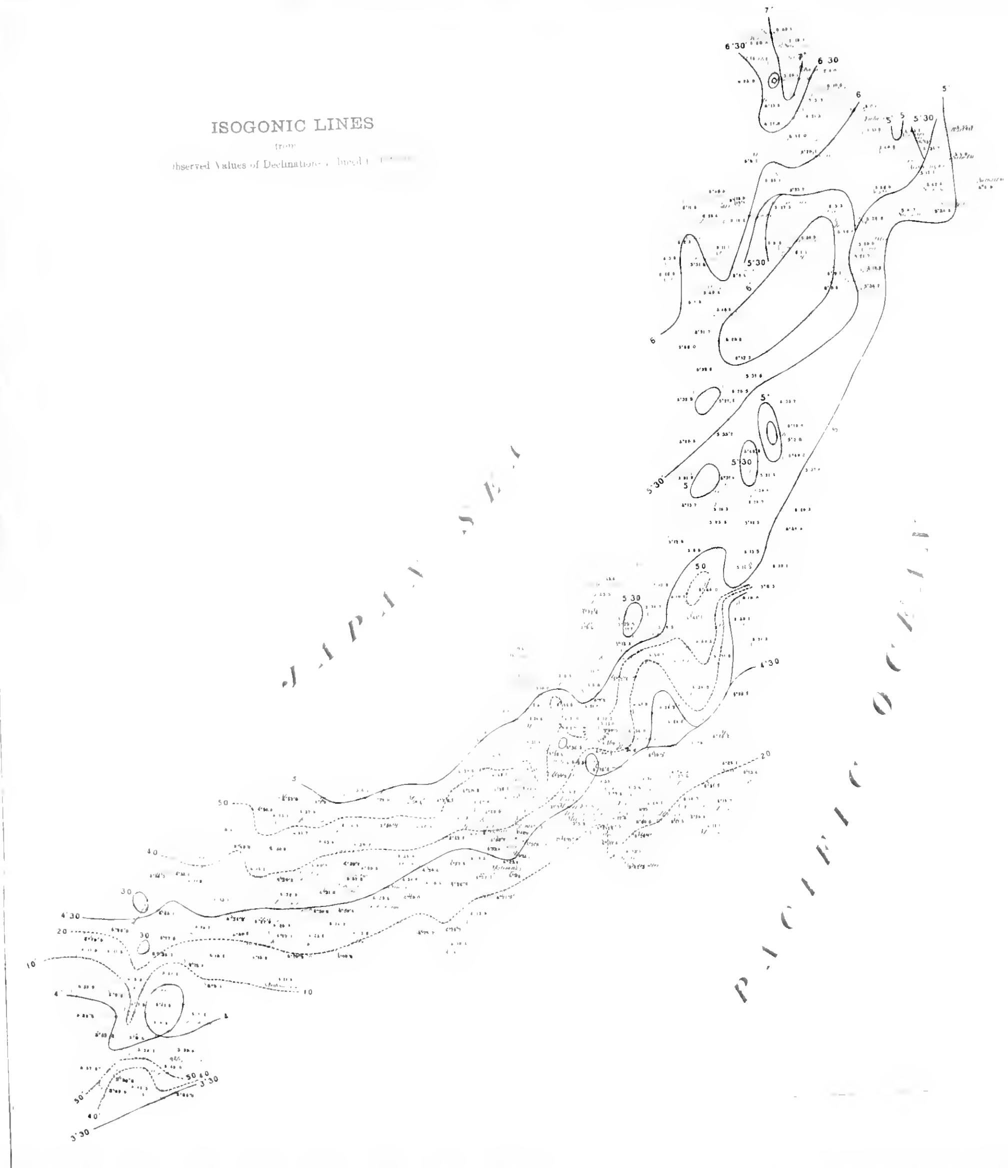
MAP I.

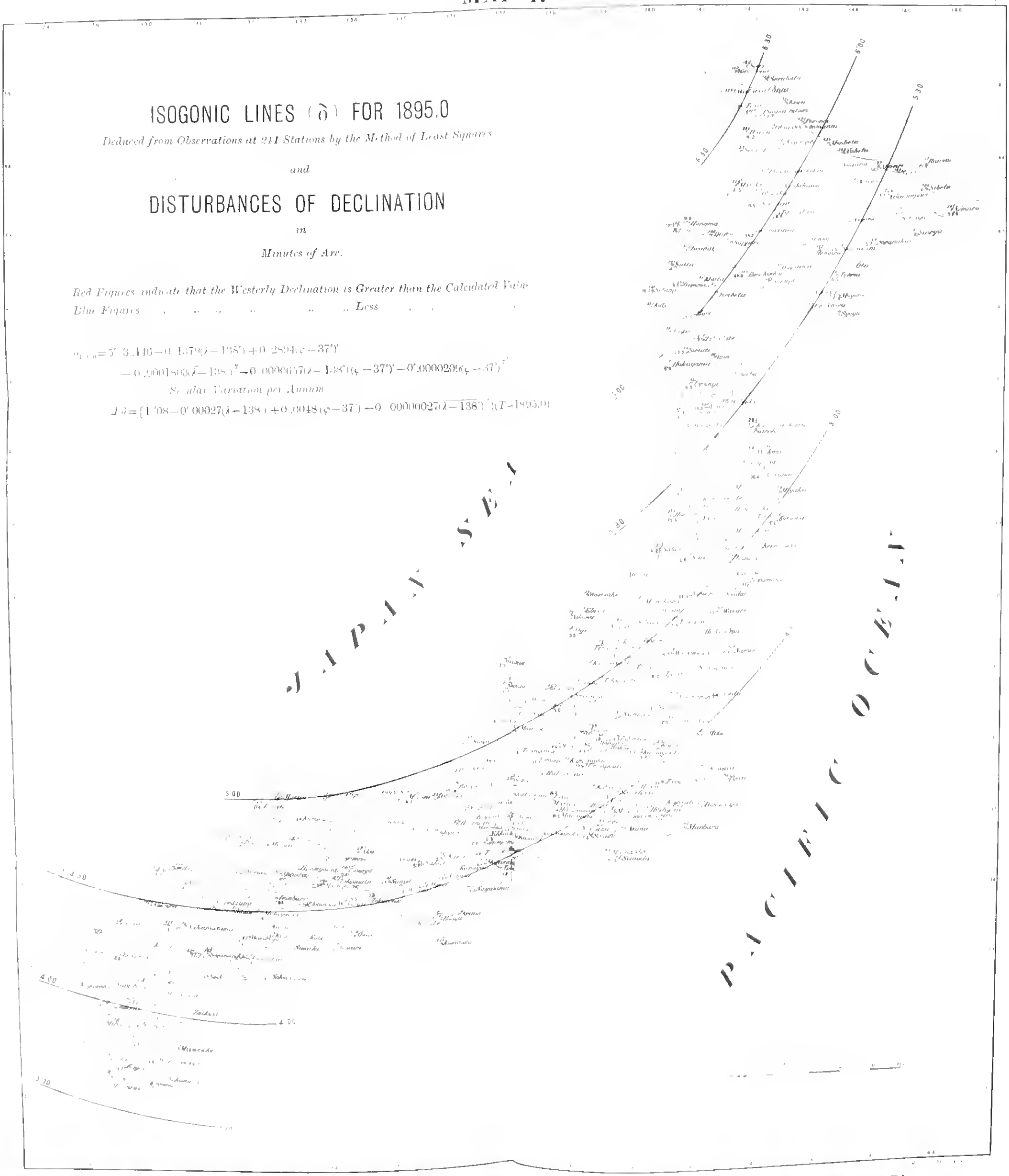
ISOGONIC LINES (δ)

ISOGONIC LINES

from

Observed Values of Declination ...




ISOGONIC LINES (δ) FOR 1895.0
Deduced from Observations at 241 Stations by the Method of Least Squares
and
DISTURBANCES OF DECLINATION
in
Minutes of Arc.
Red Figures indicate that the Westerly Declination is Greater than the Calculated Value
Blue Figures .. .. Less
JAPAN SEA
PACIFIC OCEAN
6.30
6.00
5.30
5.00
4.30
4.00
3.30

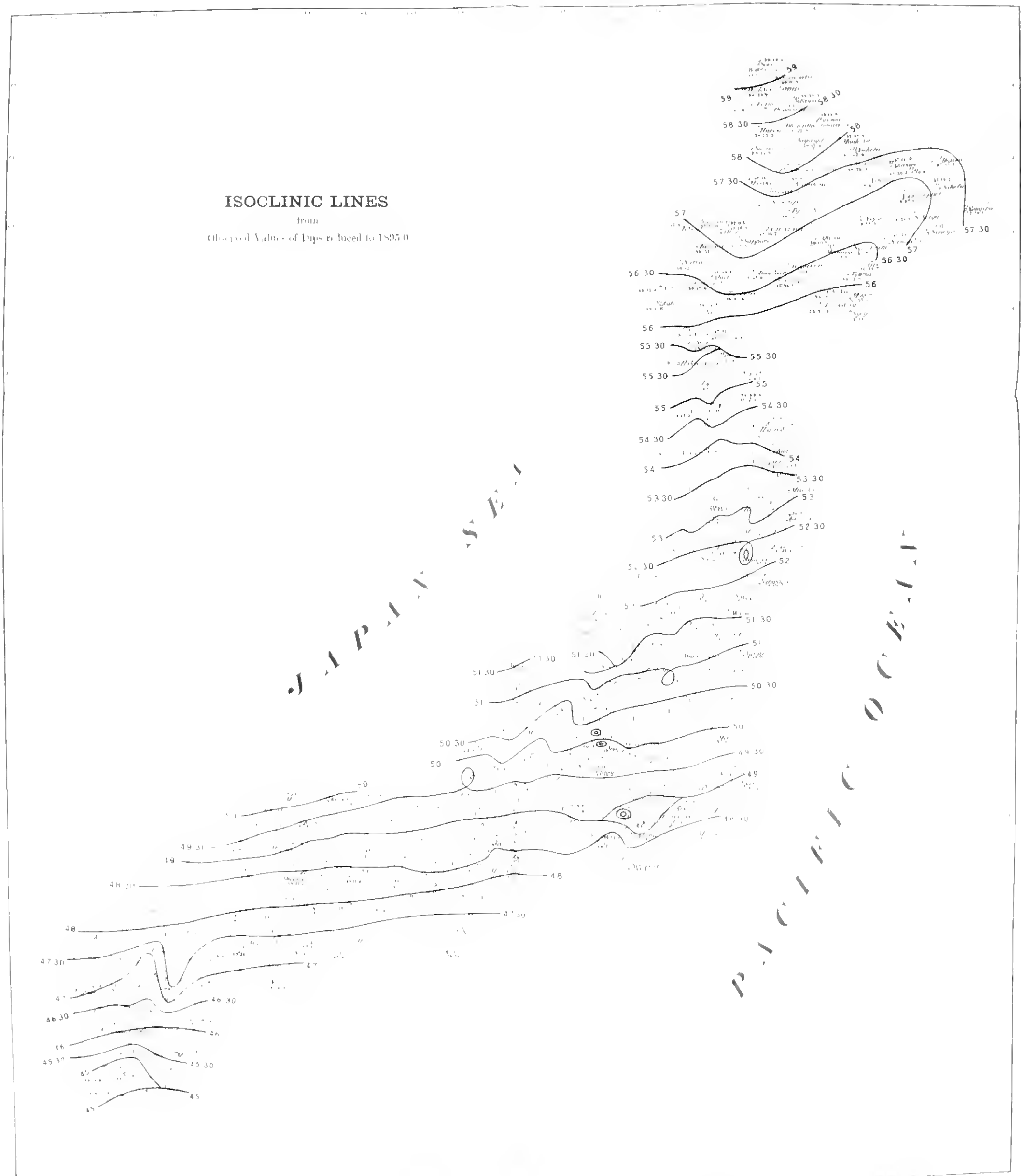
MAP 2.

ISOCLINIC LINES (θ)

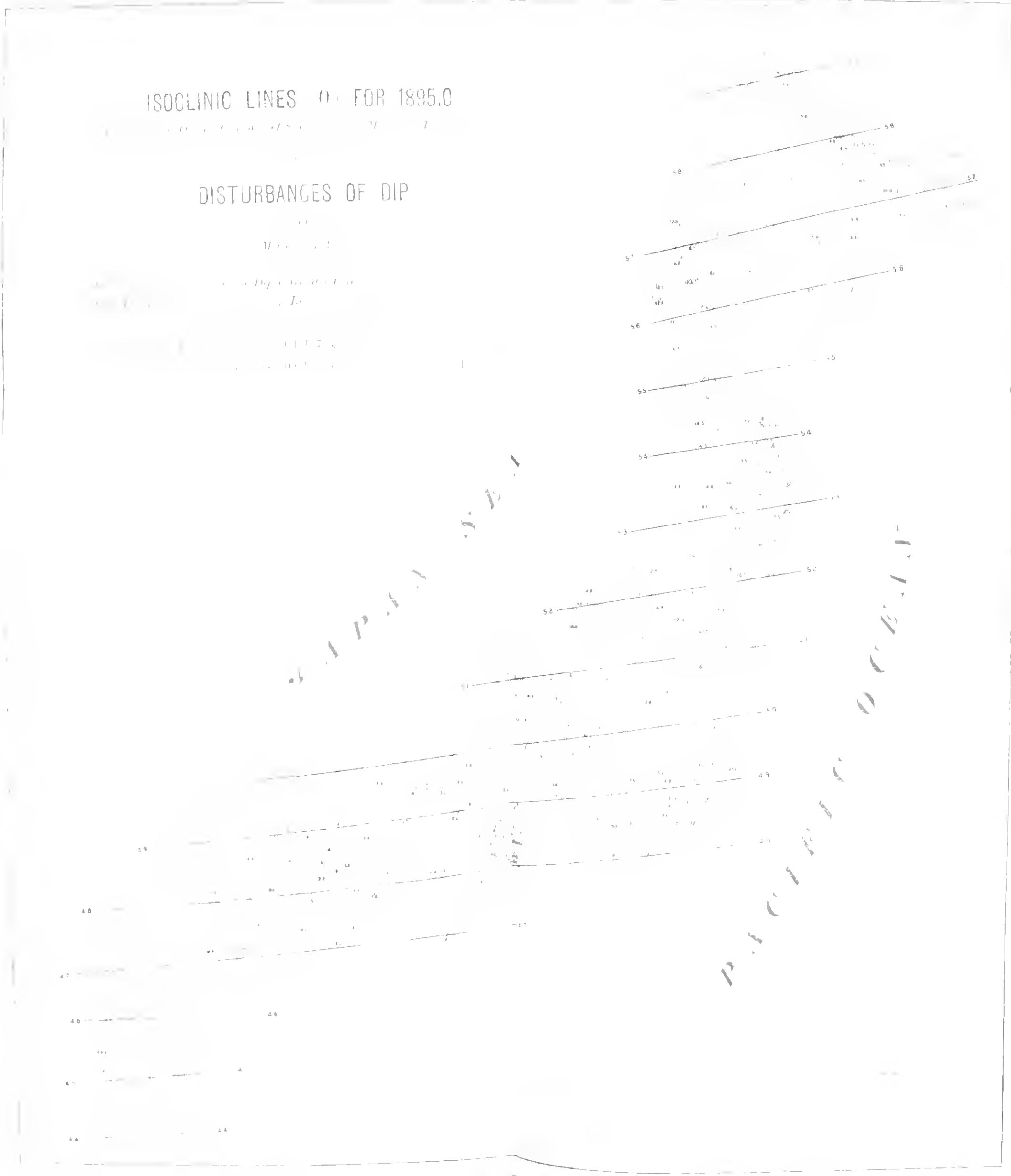
ISOCLINIC LINES

from

Observed Values of Dips reduced to 1895.0



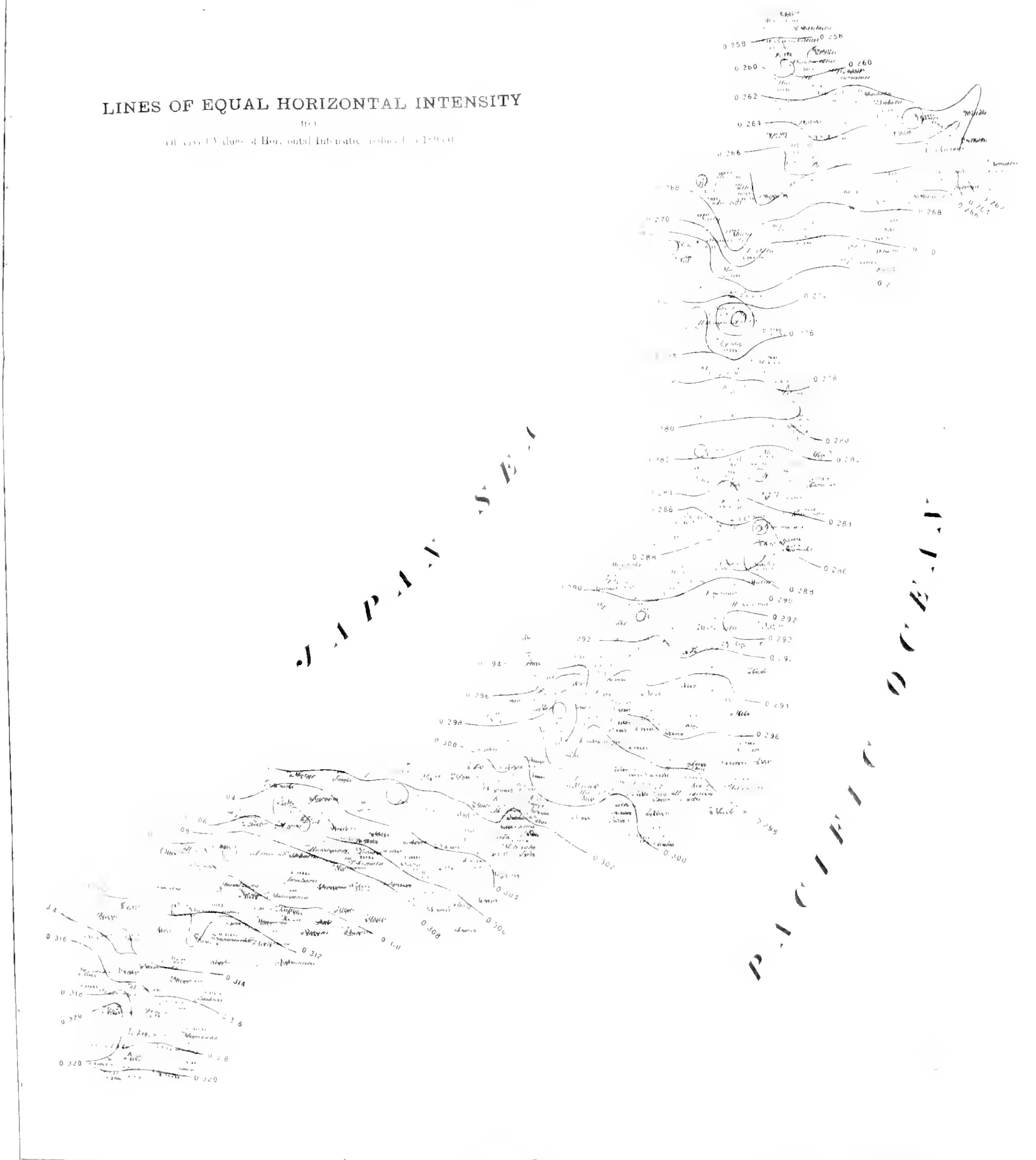
Jour. ... Coll. Vol XIV Pl. ...XXIX.

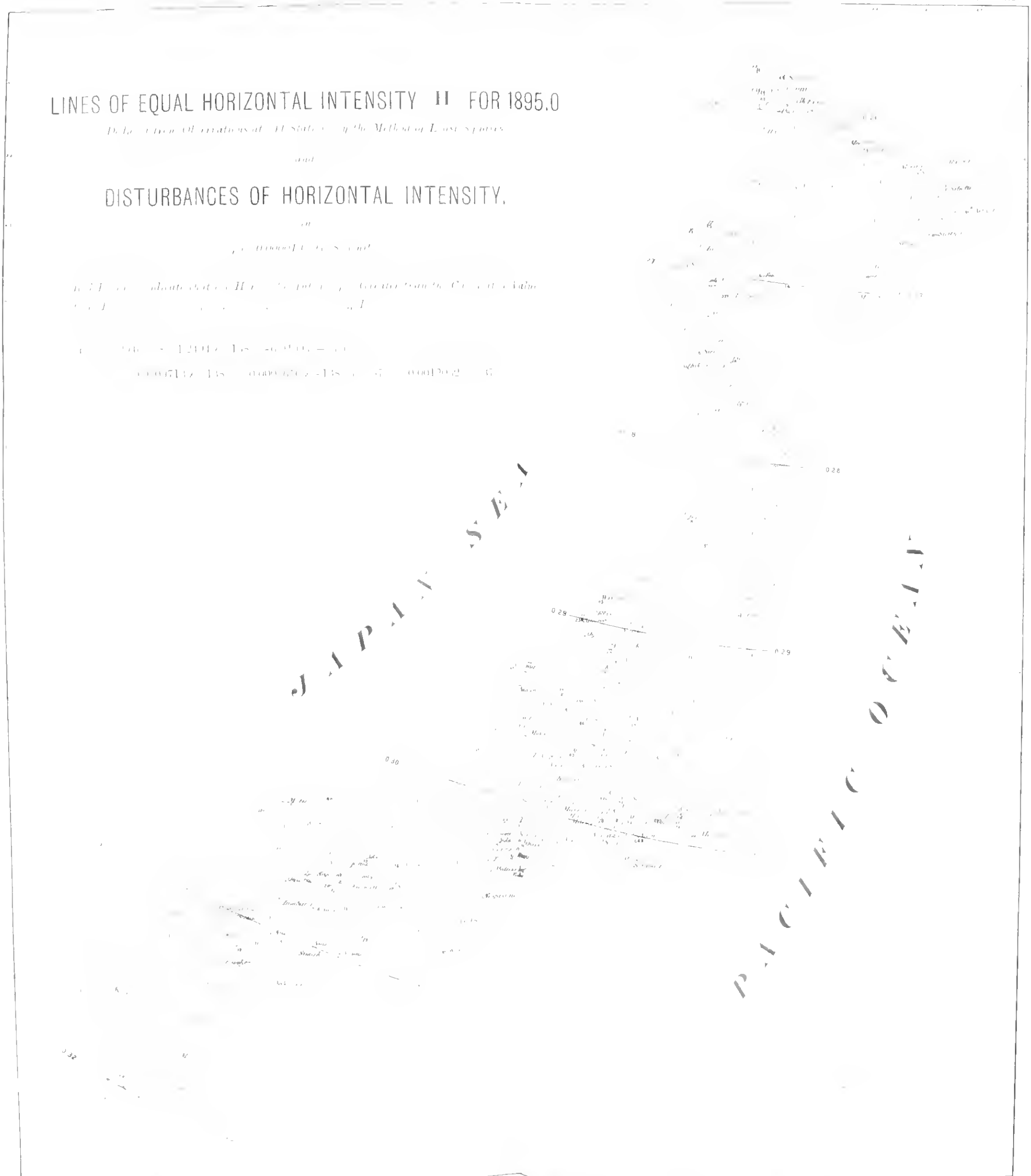


MAP 3.

LINES OF EQUAL HORIZONTAL INTENSITY (H)

LINES OF EQUAL HORIZONTAL INTENSITY

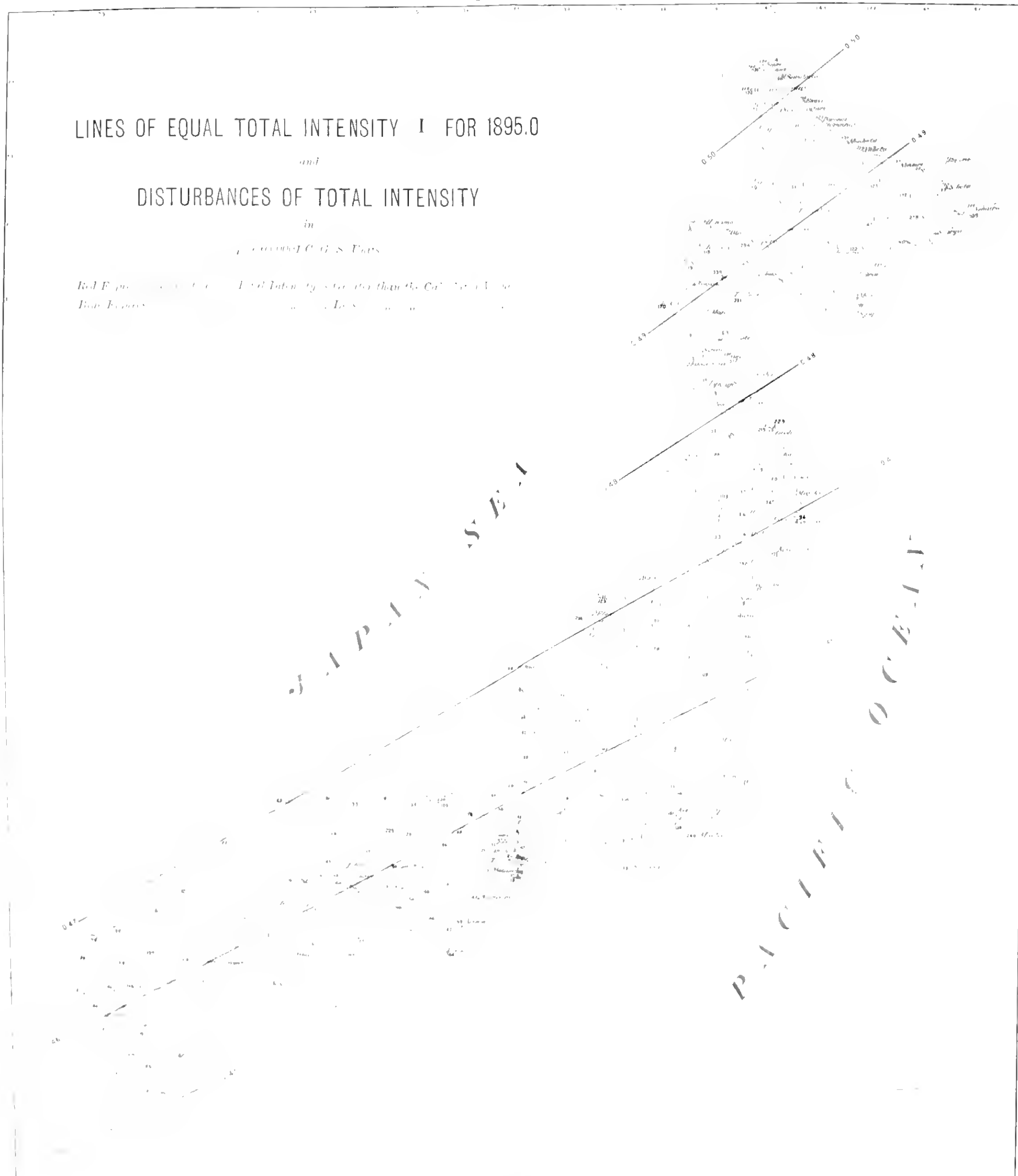



LINES OF EQUAL HORIZONTAL INTENSITY H FOR 1895.0
DISTURBANCES OF HORIZONTAL INTENSITY.
JAPAN SEA
PACIFIC OCEAN
0.28
0.29
0.29
0.30
0.32

MAP 4.

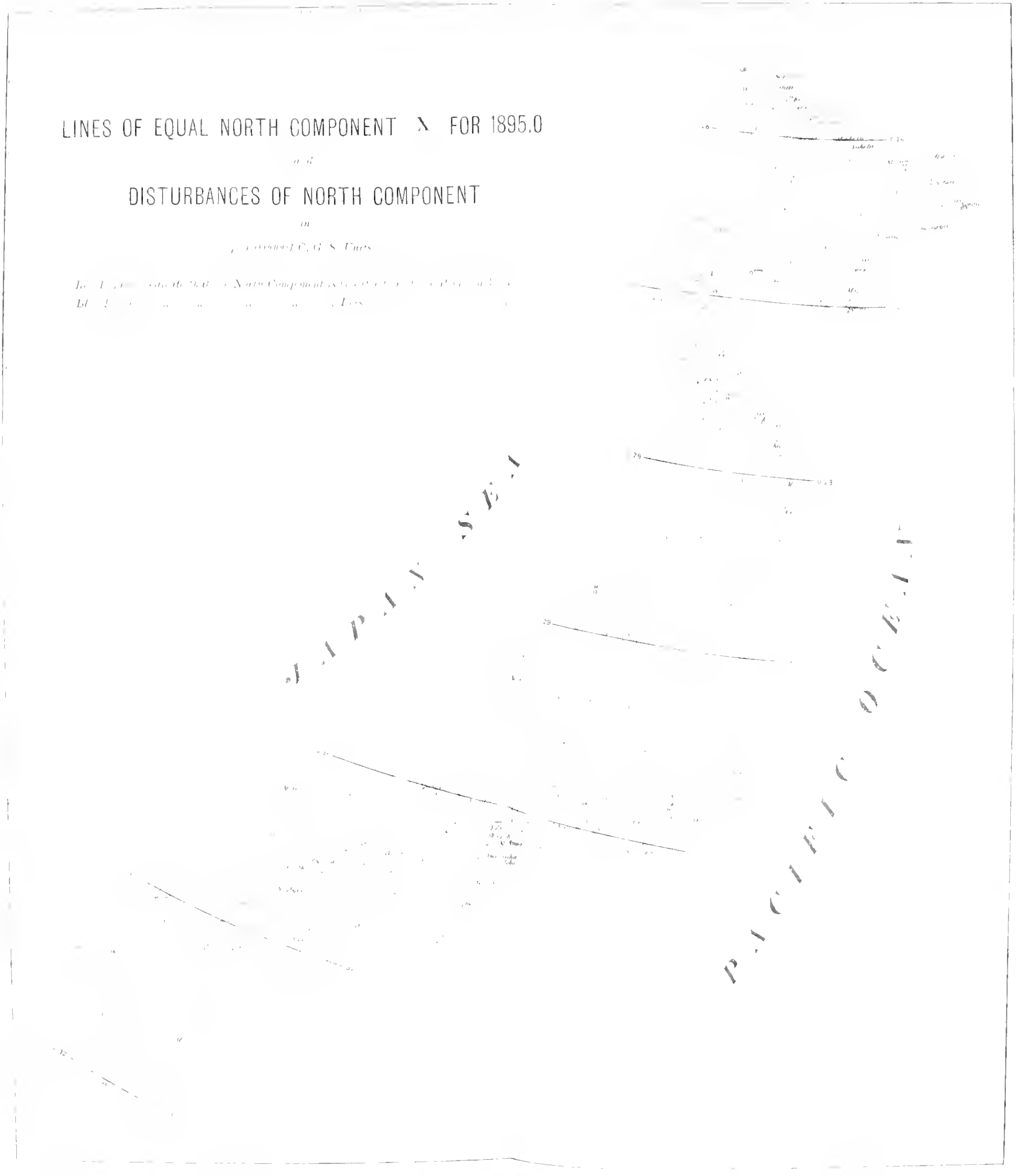
LINES OF EQUAL TOTAL INTNESITY (1)

Jour. Sc. Coll. Vol. XIV. Pl. XCI.



MAP 5.

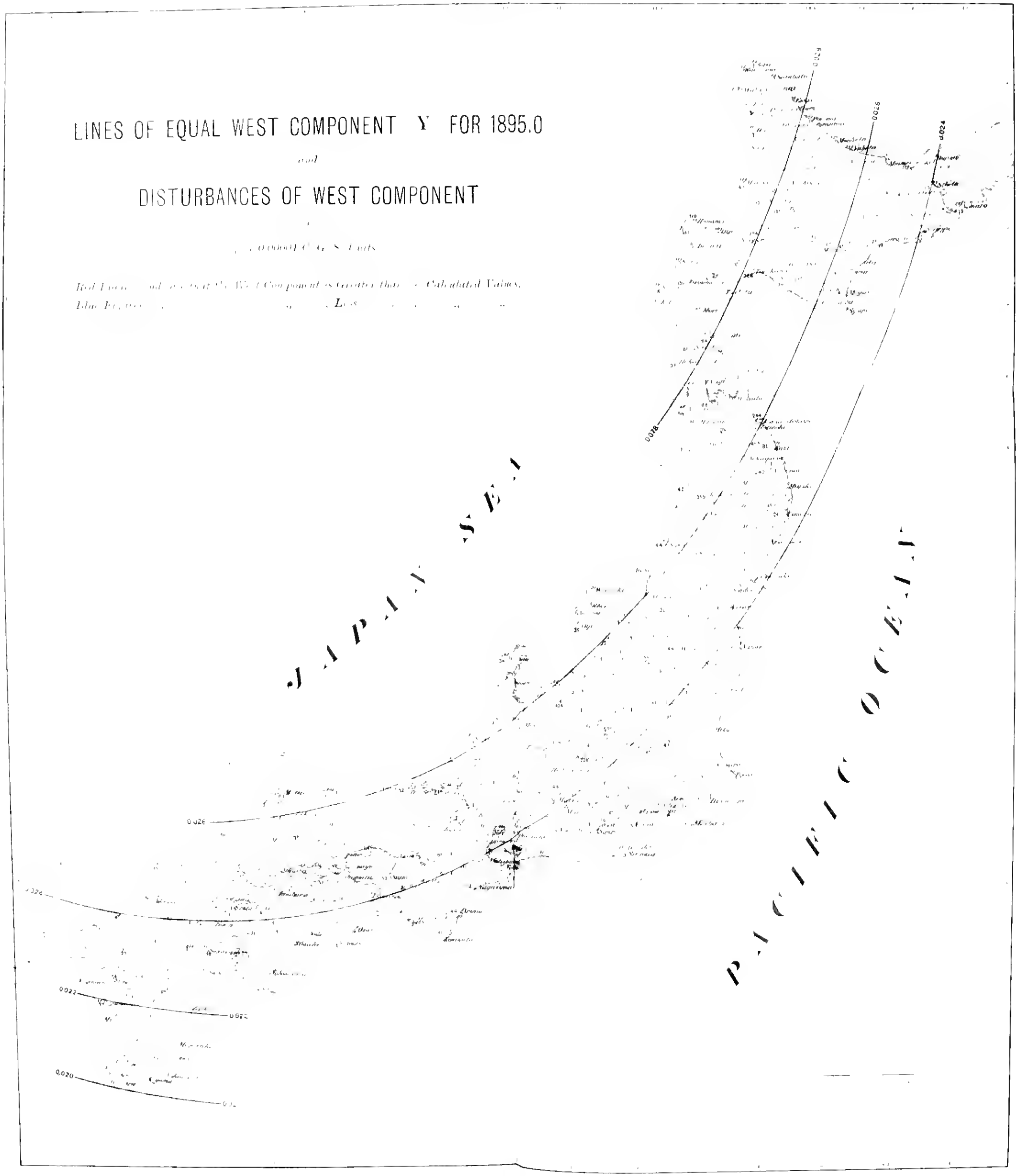
LINES OF EQUAL NORTH COMPONENT X


LINES OF EQUAL NORTH COMPONENT X FOR 1895.0
and
DISTURBANCES OF NORTH COMPONENT
in
C. G. S. Units
JAPAN SEA
PACIFIC OCEAN

MAP 6.

LINES OF EQUAL WEST COMPONENT Y

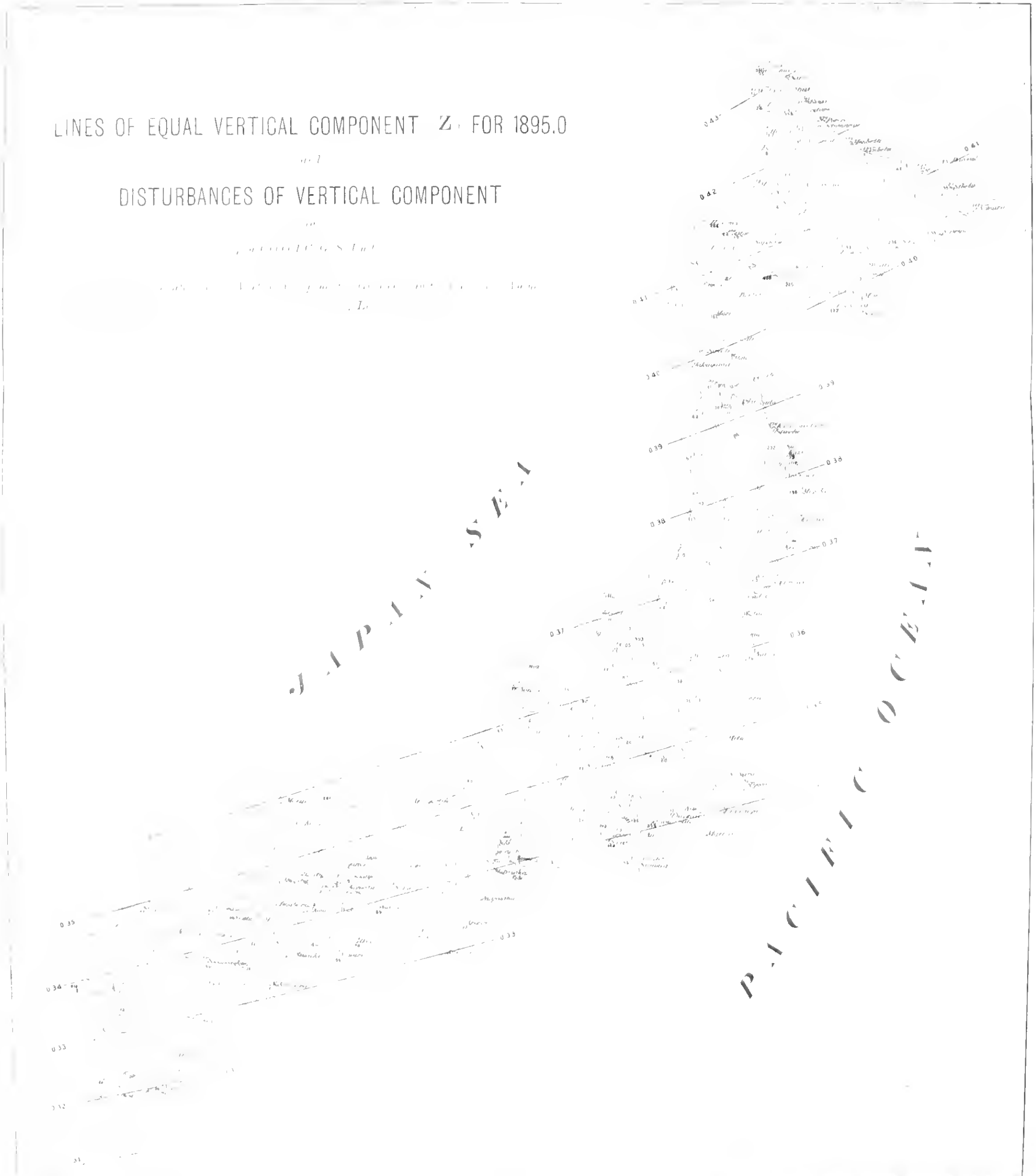
Jour. Sc. Coll. Vol. XIV. Pl. XCIII.



MAP 7.

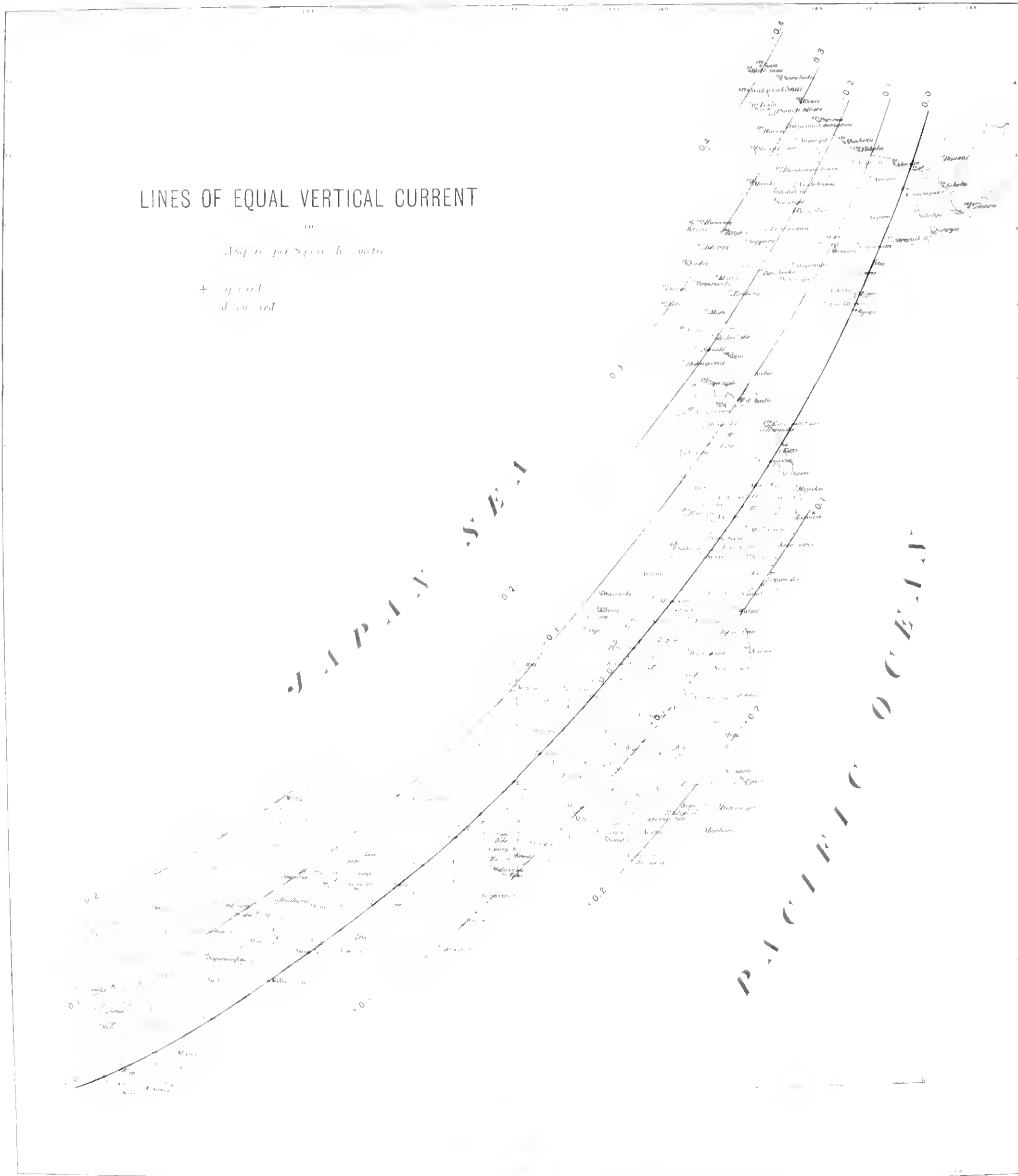
LINES OF EQUAL VERTICAL COMPONENT [illegible]

Jour. Sc. Coll. Vol. XIV Pl. XCIV



MAP 8.

LINES OF EQUAL VERTICAL CURRENT


LINES OF EQUAL VERTICAL CURRENT
JAPAN SEA
PACIFIC OCEAN
0.4
0.3
0.2
0.1
0.0
+

MAP 9.

LINES OF EQUAL VERTICAL CURRENT IN AUSTRIA,

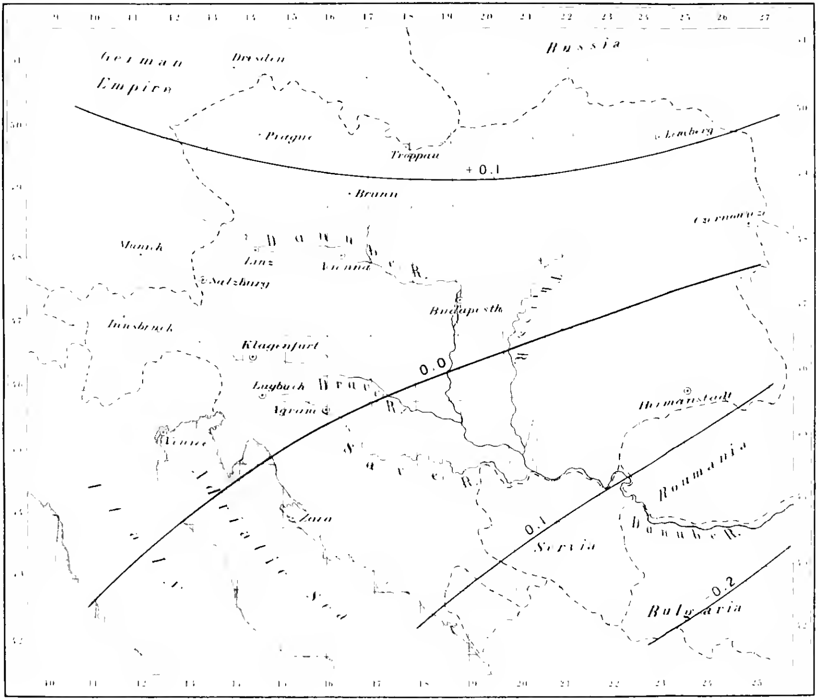
in

Amperes per Square Kilometre.

\+ *Upward*

— *Downward.*

Jour. Sc. Coll. Vol. XIV. Pl. XCVI.



MAP 9 a.

LINES OF EQUAL VERTICAL CURRENT IN GREAT BRITAIN,

in

Amperes per Square Kilometre.

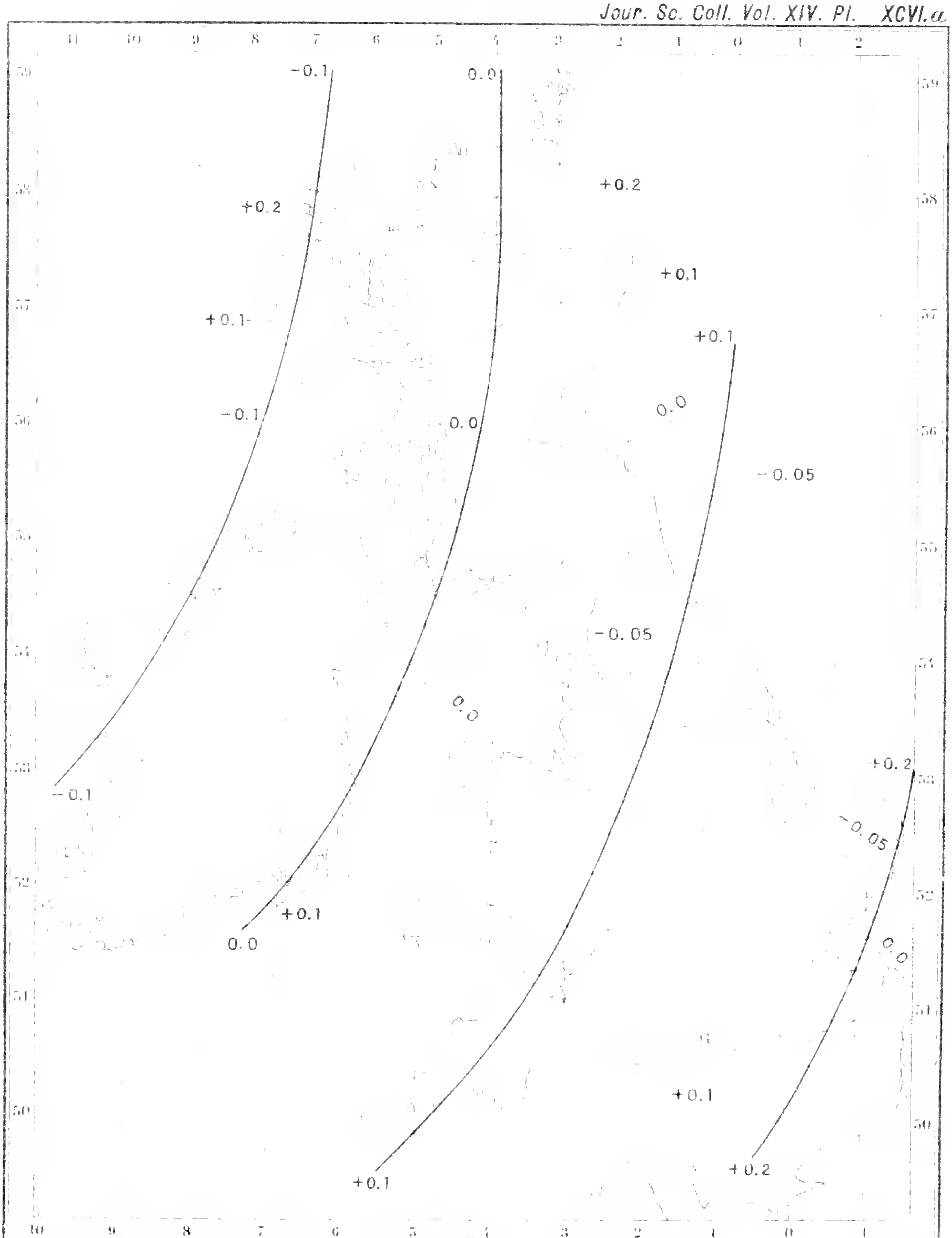
+ *Upward.*

— *Downward.*

Full Lines Derived from Quadractic Expressions for the Whole Country.

Dotted Lines Derived from Emperical Expressions for Different Districts.

Jour. Sc. Coll. Vol. XIV. Pl. XCVI.a



Jour. Sc. Coll. Vol. XIV. Pl. XCVII.

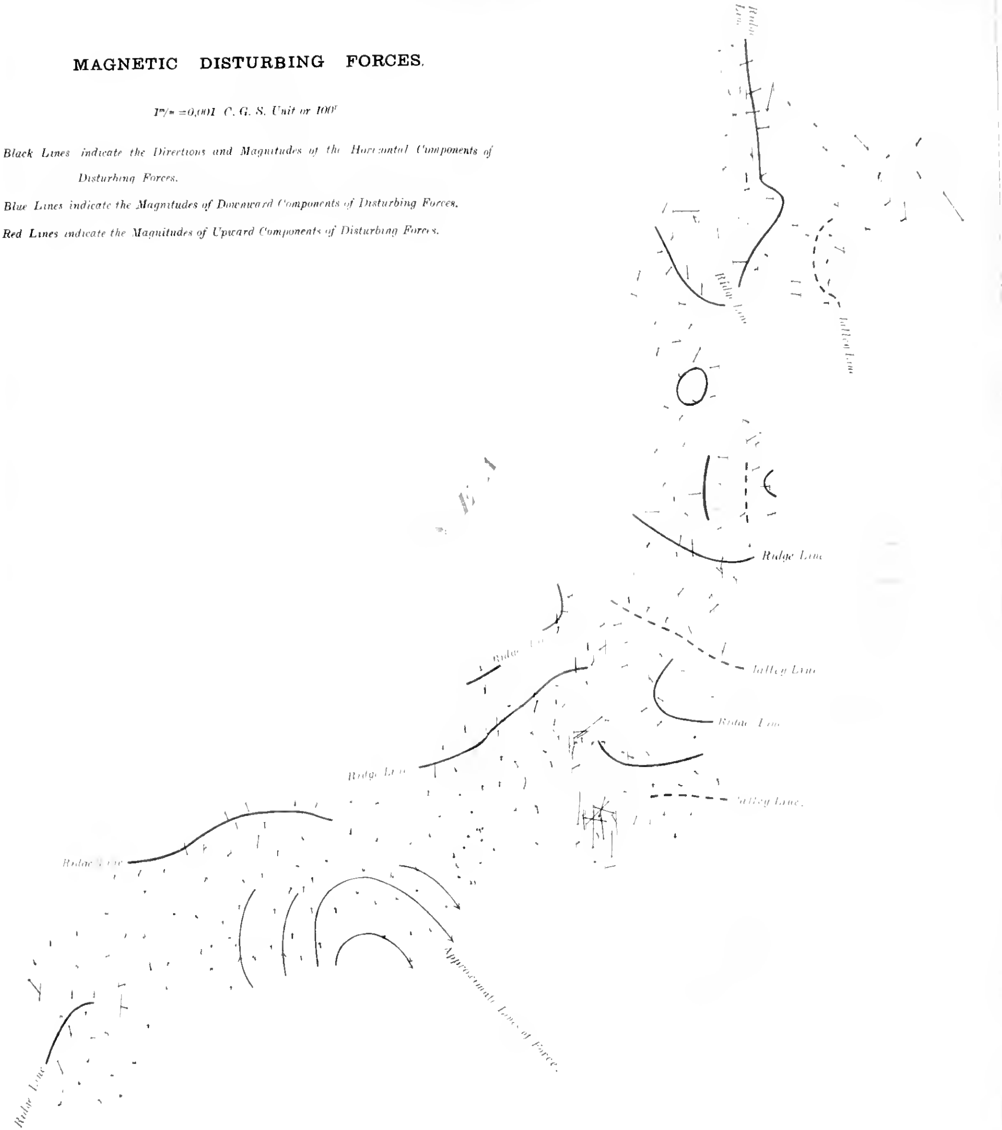
MAGNETIC DISTURBING FORCES.

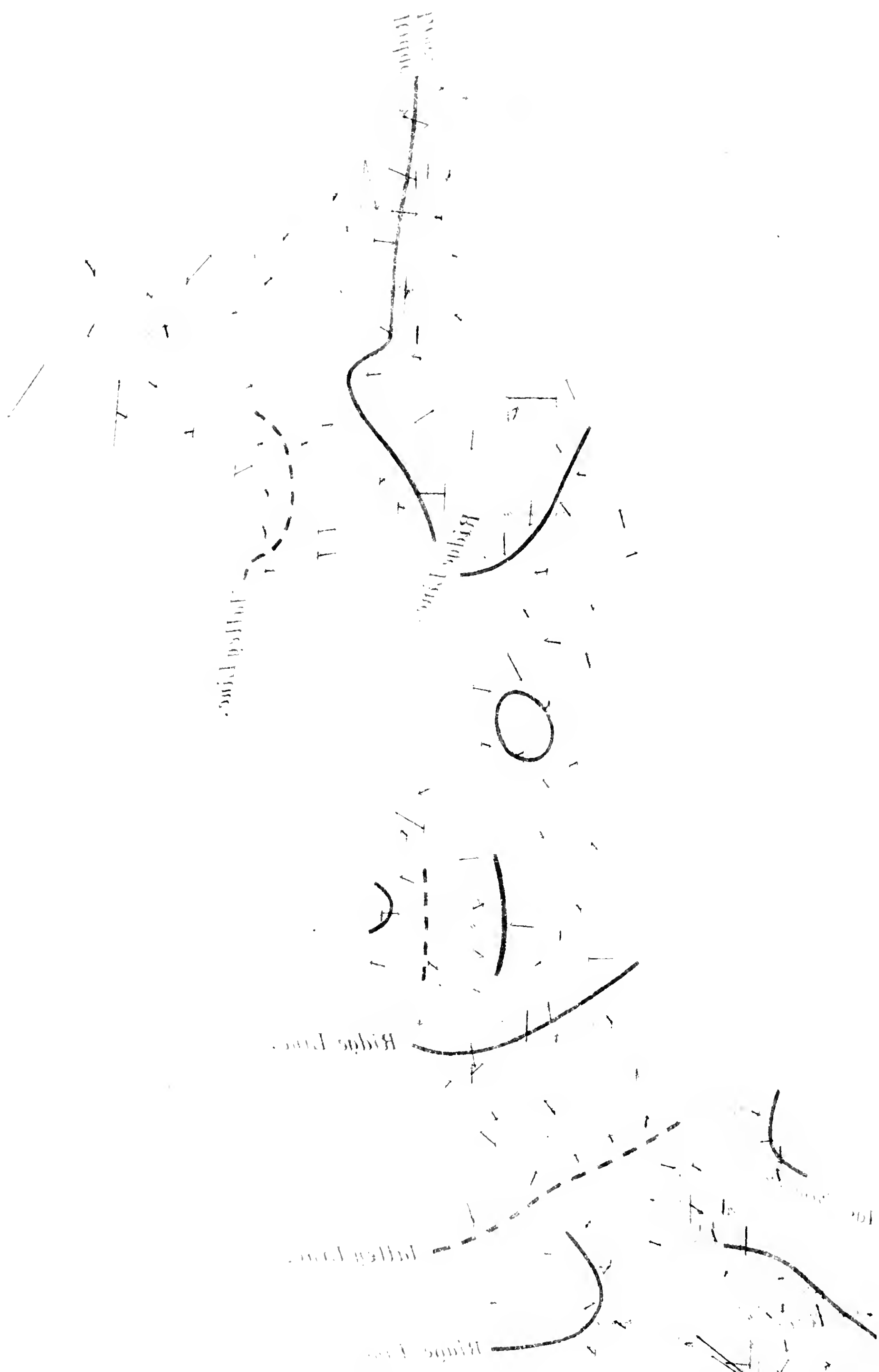
$1^{m}/_{m}$ =0,001 C. G. S. Unit or 100^{γ}

Black Lines indicate the Directions and Magnitudes of the Horizontal Components of Disturbing Forces.

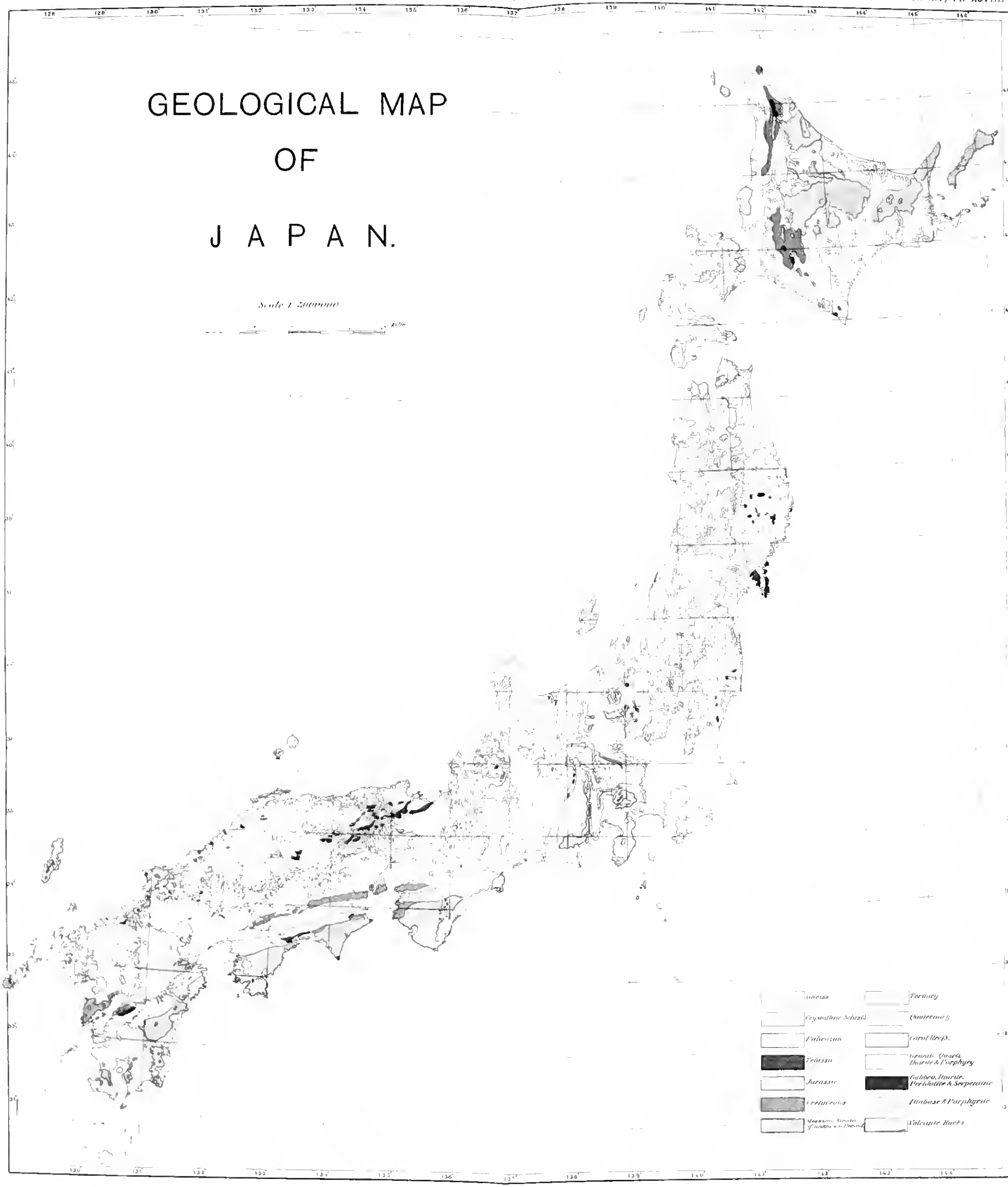
Blue Lines indicate the Magnitudes of Downward Components of Disturbing Forces.

Red Lines indicate the Magnitudes of Upward Components of Disturbing Forces.




Ridge Line.
Ridge Line.

Jour. Sc. Coll. Vol. XIV, Pl. XCVIII.



27.